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Young Adolescents' Digital Multimodal Writing in One Urban Setting

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Abstract

Today's adolescents are considered to be heavy users of social media technology and web-based applications, compared to middle-aged cohorts (e.g., 30-50 years old). However, exact usage details for young adolescents (10-15 years old) in the US are difficult to find, especially for socioeconomically disadvantaged students. There is also scant literature that examines young adolescents' multimodal composing with technologies, the audiences and contexts for which they intend their digital multimodal creations, and the values they hold regarding their creations. This pilot survey study is a response to this need for research. While overall the findings indicate some degree of diversity of form, purpose, and audience in composing among the young adolescents surveyed, these findings also reveal gaps in certain modalities for some groups of young adolescents. Additionally, the researchers call attention to a need for developing an audience awareness, especially of an online audience, and *multimodal* assessment acumen in these young writers.

Keywords: young adolescents, multimodal writing, technology, social media, urban

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Today's adolescents are considered to be heavy users of social media technology, the Internet, and web-based applications that enable them to read and produce a variety of multimodal texts, compared to over-30 and middle-aged (e.g., 30-50 years old) cohorts (Anderson & Jiang, 2018). Smith (2014) reported that adolescents find multimodal composition "engaging," that they experience it as "a collaborative, social process", and that it is "particularly beneficial for 'marginalized' adolescents," including English Language Learners (ELLs) and at-risk adolescents (p. 1). For the purposes of this study, multimodal composition or text is any digital creation that employs two or more modalities (e.g., audio, visual, gestural, textual) to convey meaning (McGrail & Behizadeh, 2017).

Exact details about social media use for young adolescents (10-15 years old) in the US are difficult to find (Rideout, 2016; Quinn & Oldmeadow, 2013), especially for socioeconomically disadvantaged students and for non-white students. In some cases, data need to be deduced from the results of surveys of social media use among slightly older teens (13-17), especially as performed by Pew Research (Vogels et al., 2022). What data we do have on the younger cohort of adolescents suggests that they closely track social media use as performed by the older group, in terms of proportion. However, because social media companies generally frown on social media use by kids younger than 13 and because parents often discourage social media use among children and young adolescents to prevent undesirable media effects such as "the violence, advertising promises, or pornography", among others (Valkenburg & Piotrowski, 2017, p. 252), young adolescents typically spend less time on social media than teens, and more time watching television (Rideout, 2021).

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Martin and Lambert (2015) also observed differences in prior use and exposure to technology among students from different demographic groups. Pew Research Center's data (Vogels et al., 2022), for example, reveals that "higher shares of Black and Hispanic teens report using TikTok, Instagram, Twitter and WhatsApp compared with White teens" (p. 4). Vogels et al. (2022), writing for Pew, point out that gender is also a strong predictor among teens for specific social media use, with boys stating a preference for YouTube, Twitch and Reddit and teen girls stating that they preferred TikTok, Instagram and Snapchat. Research on digital multimodal writing and young adolescents in schools with insufficient technology resources has been limited though, and the findings on adolescents and technology use at large have been inconsistent (see the National Opinion Research at Chicago survey (NORC), 2017; Purcell et al., 2013).

Yet, teachers rely on technology use information to determine what aspects of digital multimodal writing to emphasize in their instruction and how to differentiate such instruction to meet the needs of all young writers. Different multimodal genres require developing the design competencies, knowledge of genre conventions and writing processes unique to particular forms of multimodal expression (McGrail et al., 2021; McGrail & Behizadeh, 2017). These skills aid students' comprehension of the multimodal text as young writers have the opportunity to experiment with different modalities to make meaning and to learn how these semiotic systems interact with one another (Serafini, 2012) and how to use them to attain their communicative goals. Writing for social media outlets both expands and complicates the traditional notions of audience as well as reader and writer boundaries (McGrail & Behizadeh, 2017; McGrail & McGrail, 2014; Marwick & boyd, 2010).

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Young writers are developing these competencies at different paces, depending on their technology expertise, multimodal composing proficiency, and exposure to diverse audiences and digital writing contexts (Martin & Lambert, 2015). Discrepancies in technical skill and resources available can affect how young writers are able to create meaning (Smith, 2019). Considerations of the social reality, including access to and knowledge of technology, among young adolescents from economically disadvantaged contexts are critical to understanding these learners' engagement of technology for multimodal composing. Teachers' acquiring an in-depth understanding of young adolescents' exposure to technology and multimodal composing is thus necessary in order to support writing development of these young multimodal content creators. This knowledge may also support reading development as writing improves reading comprehension and reading skills (Graham & Hebert, 2011; Dean & Grierson, 2005). This is because "reading and writing are deeply reciprocal activities" (Graff et al., 2018, p. xxi). Little is, however known about young adolescents' use of technology for multimodal composing in economically disadvantaged educational contexts.

It is therefore essential that educators and teacher educators are able to "get a handle" on the fast-moving portrait of media use among young teens, especially as it impacts the technologies involved in digital multimodal writing. In response to this need, the researchers of this exploratory pilot survey study inquire about prior exposure to and use of technology for digital multimodal writing among young adolescents with limited technology resources in one US-based urban educational setting. Our research questions are the following:

1. What forms of multimodal creations did these young adolescents produce?

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2. Which purposes, audiences, and contexts did these young adolescents engage for their multimodal creations?
3. What values did these young adolescents assign to writing and their multimodal creations?

We note that the survey and its analysis that we report on here were completed before the COVID-19 international health emergency. However, "while teens' access to smartphones has increased over roughly the past eight years [(95% now and 73% then], their access to other digital technologies, such as desktop or laptop computers or gaming consoles, has remained statistically unchanged" (Vogels et al., 2022, p. 6).

Multimodality, Writing and the Pandemic

Scientific studies have shown that the COVID-19 pandemic has had an overall deleterious effect on student learning worldwide, as it disrupted schools and may also have led to a disproportionate negative impact on children from a lower SES (Bem-Haja et al., 2022).

Regarding pandemic-related concerns on reading and writing in international contexts, Martí-Gonzaléz et al. (2020) found that "[the teaching-learning process of reading and writing in "a hybrid or online way" proved to be "a major challenge for teachers and families and, of course, also for children who were in the process of learning. (p.1). This is despite the fact that both in the US (Rideout et al., 2022) as well as abroad "many young people used their devices directly to make art or music, such as taking and editing photos, making videos, or composing music" (Martí-Gonzaléz et al., 2020, p.20).

As for reading itself, whose intensive use often predicts increased writing (Graham, 2020), little seems to have changed since the pre-pandemic social media era. According to the

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Common Sense Census reporting on the data gathered among youth in the US (Rideout et al., 2022), reading (which was conceptualized to include print, digital and eprint technologies) in 2019 stood for young adolescents at about 35%. In 2021, it stood at 34%. Fortunately, then, the pandemic does not seem to have eroded the practice of reading, but other media use increased significantly.

In an international study, Skar, Graham and Huebner (2023) performed a recent replication study on children's writing during the pandemic. While their cohort was much younger than ours, dealing with first and second graders, they found that indeed purely online instruction had a negative impact on these children's writing quality and handwriting fluency. In the US, the COE of the Common Sense corporation Steyer has noted that during the pandemic:

> For parents, caregivers, educators, and even policymakers across the country, kids' media use has been among some of the issues at the center of this conversation. As school went remote, as activities were canceled, as new variants forced kids and families back indoors, it was clear to anyone who spent time with kids that screens were taking up more and more time in their days (Rideout et al., 2022, p. v).

Reflecting this, the Common Sense Census report on young adolescents and teens notes that:

> From 2015 to 2019, media use for tweens grew only 3%, and for teens, 11%. But from 2019 to 2021 alone, media use grew by 17% for tweens and teens. On average, 8- to 12-year-olds use about five and a half hours of screen media per day (5:33), while 13- to 18-year-olds use about eight and a half hours of screen media (8:39) (Rideout et al., 2022, p. 3).

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Rideout and Robb (2021) found in a survey of US young adolescents that students during the pandemic still found time to create a great deal of digital content. Some of this material included anime, poetry, musical beats, photography, and shooting and editing videos. They reported that many of these young people used their smartphones and other devices to make art and music. Specifically, "About half (53%) of all 8- to 18-year-olds said they did so, including 19% who did so "often" (p.20). In terms of demographics of the surveyed youth, "Again, girls were more likely than boys to create digital content (24% vs. 14% do so often)" (p. 20), and similarly to the earlier reported trends (NORC, 2017), "Black tweens and teens were more likely to do so than their White or Hispanic/Latino peers (28% often do so, compared with 17% of Hispanic/Latino and 18% of White young people)" (Rideout & Robb, 2021, p. 20).

Technology and Socioeconomically Disadvantaged Young Adolescents

While some of the news on social media creation by lower-SES students is hopeful, some researchers have provided a less positive account of adolescents' access to and use of technology among socioeconomically disadvantaged students. For instance, researchers of a national study that examined Advanced Placement and National Writing Project teachers' perspectives on digital writing habits of middle and high school students reported that 56% of teachers were concerned that the lowest income students were unlikely to "have sufficient access to the digital tools they need, both in school and at home" (Purcell et al., 2013, p. 3). Alternatively, studies have indicated that factors other than access to technology are redefining the digital divide between today's high-income and low-income students and schools (Rowsell et al., 2017). Factors that can undermine effective student technology use include firewall barriers and mobile device use restrictions, limited speed and bandwidth capacity, including having or not having

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enough connectivity to meet student needs (Bach et al., 2018), the quality and type of software that is available, as well as the instructional uses to which technology is put (drill and practice applications in low SES schools vs. simulations in high-SES schools (Dolan, 2016; Project Tomorrow, 2013; Warschauer & Matuchniak, 2010).

The picture is not always bleak nor clear-cut, however. Indeed, the researchers of the NORC survey (2017) among older adolescents found that Black youth were both more active in social media, used more social messaging applications and reported more frequent use of smartphones than white teens. It is not clear if similar trends are observable among young adolescents.

Young Adolescents and Digital Multimodal Composition

The use of social media technologies to create content has reverberated into the classroom, where digital filmmaking (Husbye & Vander Zanden, 2015), photography (Alley, 2018), video and blog projects (Ranker, 2015), as well as comic book creation (Bitz & Emejulu, 2016, McGrail et al., 2020), among others, are becoming common experiences for many students today. In a review of empirical literature on adolescents and digital writing, other reported types of multimodal products that students created across different contexts [inside/outside school and afterschool programs] included: “video game/virtual world; PowerPoint; website; online fan fiction; blog/online journal; e-comic; podcast/radio show; Claymation video; photo collage; hypermedia; social networking; 3D animation; and digital book” (Smith, 2014, p. 6). The creations were “frequently made public, distributed widely, and designed for authentic purposes” (Smith, 2014, p. 7). What is thus intriguing in the studies Smith cites is the prosocial character of this technology use among adolescent content creators.

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Prosocial discourse can also result in the invocation of authentic audiences (Lunsford & Ede, 2009; McGrail & McGrail, 2014). This was true of the adolescents who engaged in online poetry sharing with readers and reviewers within a fanfiction affinity space (Padgett & Curwood, 2016) and of the high school youth who participated in Twitter literary conversations with graduate student audiences from the local university (Hunter & Caraway, 2014). In a study by Kaplan and Zangerle (2015), middle school students had the opportunity to work on community-oriented inquiry projects, which resulted in the creation of public service announcements (PSAs) on the pressing issues or problems in the local communities such as alcohol and drug abuse, animal abuse, bullying or divorce (Kaplan & Zangerle, 2015). The PSAs were designed for an authentic young adolescent audience in the community and beyond and the students shared their final stories with their immediate peer audiences.

Social media platforms such as twitter, blogs and Instagram have thus both expanded and challenged traditional notions of the writer's audience and reader-writer boundaries (McGrail & McGrail, 2014; McGrail & Behizadeh, 2017). This is because these platforms encourage many-to-many communication with diverse audiences (Marwick & boyd, 2010). "Much like writers, social media participants imagine an audience and tailor their online writing to match" this imagined audience's expectations (Marwick & boyd, 2010, p.128). The actual readers and viewers of writing in social media spaces are however much more diverse and even unpredictable than the audience the writers envision or invoke for their writing on social media.

Understanding to which audiences young adolescents aim their digital multimodal creations and which social media platforms they choose as venues for their writing will shed light on how young adolescents position their writing in social media environments and what

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expectations they have from the audiences for whom they compose on social media. Implications from these insights are important for teaching the concepts of audience and multimodal production, publishing and distribution, as classrooms are becoming more and more spaces of connected learning when teachers incorporate into instruction social media platforms and collaboration- friendly multimodal production technologies.

Yet the picture of multimodal composing with social media technology is not consistent. Martin and Lambert (2015) observed differences among students from disparate demographic groups, where heavy technology users composed for various audiences, including online audiences, and in "multiple modes and genres" while infrequent users and those who had limited technology experience produced "continuous text written in a large, purple font" (p. 217). Martin and Lambert (2015) called the first group of users "digital drivers" and assigned them characteristics such as "independent technology use; high digital text consumption, and high digital text creation." He called the second group "digital passengers" due to their "dependent technology use; limited digital text consumption; and minimal digital text creation" (p. 221). In addition, these researchers identified a group of students they found to be somewhere in between the two high- and low-end groups of technology users and multimodal content creators. He called these "digital navigators," based on their independent technology use; moderate to high digital text consumption;" but "limited digital text creation" (p. 221). The researchers concluded that the varying degrees of prior technology use across students from different demographic groups necessitated differentiated pedagogy to meet all student writers' needs when they composed digital multimodal texts.

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Gutiérrez (2008) has used the term "third space pedagogy" to describe a classroom community that expands the learning space beyond the classroom walls and uses "multiple mediating tools," that is, using the tools available at home. Smythe (2010) explored the concept of third space in the context of podcasting in her middle school ELL classroom, finding that "podcast time" changed the classroom power dynamic and encouraged distributed knowledge, social interaction, and collaborative learning.

In a study on seventh-graders' digital multimodal compositions, Castek and Cotanch (2013) found that collaboration engages "those students who may be less proficient with alphabetic writing but who have unique perspectives to share and rich ideas to communicate" (p. 186). Similarly, Zammit (2011) reported increases in engagement and self-image among students from low socio-economic backgrounds when teachers incorporated multiliteracies and multimodal writing digital tools into instruction. This is because the students were able to create "multimodal texts that changed what was seen as legitimate school texts and thus credited them as literate individuals" (p. 203). These latter studies represent though more of the teacher's than of the student writer's perspective. More research is needed on young writers' self-perception and appraisal of multimodal digital writing, attending especially to students' voices from schools with limited resources. How young writers view their writing experiences in general and writing that engages multiple modalities and multiliteracies influences their motivation and enjoyment of writing (Castek & Cotanch, 2013; Zammit, 2011). Motivation and enjoyment of writing lead to greater effort and more goal-oriented learning, resulting in improved writing performance (Graham et al., 2017; Wright et al, 2019).

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In order to support student writer "design processes and decisions entailed in systems and structures of [multi-representational] meaning" (Jewitt, 2008, pp. 248-249), teachers and teacher educators ought to seek a better understanding of young adolescent writers' prior experiences with technology and digital multimodal production, the audiences and contexts for which they intend their digital multimodal creations, and the values young writers hold regarding their creations. There is scant literature, though, that explores these aspects of the composing process among young adolescent multimodal content creators using today's technologies. Our work, which is situated in a Title I urban school setting in a large city in the American south, is a response to this need.

Multimodal Technologies, Writing and the Way Forward

It is our wish that literacy educators, researchers and school administrators use findings from our own and the above research to identify the resources and writing support needed to aid multimodal composing among young adolescents and adolescents at large, and specifically for socioeconomically disadvantaged young adolescents in their own educational contexts. Instruction about multimodal composing can further enhance students' ability to read and interpret critically their own multimodal texts and those of others (Pantaleo, 2017). Creating multimodal texts may also support what Eisner (2003) referred to as learning to "think within a specific medium," which is knowing how to conceptualize and convey meaning using the affordances of meaning making tools such as for example, image, sound, movement and other media (p. 343).

Theoretical Frameworks

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This research is an exploratory study, as we were interested in young adolescents' experiences with technology and multimodal composing along with their attitudes towards these topics. We therefore chose a survey instrument for collecting the data and surveying students. The survey enabled asking multiple-answer questions about technology uses and multimodal composing, yielding more data to analyze than would otherwise have been possible in short interviews with the participants. Even though we report frequencies, we are interested in investigating the diversity, rather than the distribution of technology use and multimodal composing in a population of young non-white adolescents in one urban context (a particular case). This is a characteristic of the qualitative survey or "the diversity survey" (Jansen, 2010, para. #2). Similar to structured interviews in qualitative research, our survey questions were "defined beforehand and the aim of descriptive analysis is only to see which of the predefined characteristics exist empirically in the population under study," (Jansen, 2010, para. #9).

Socially employed technologies and their outcomes, i.e., the forms of multimodal creations that we examined through research question (RQ) 1 in our work, reproduce the discourses that users ascribe to them (Lynch & Kinsella, 2013). However, the idea of *discourse* that we have in mind reflects Gee's (1989) pre-social media construct of discourse that, when translated for our study, manifests as ways of using, thinking, and acting upon technology that were socially meaningful and acceptable for the young adolescent technology users and content creators we surveyed. In a later work, Gee (1990) augmented the term Discourse with a capital "D" and associated it with "various objects, tools and technologies" (p. 155). This latter definition is of special interest to this analysis, since it places technology in a group with other

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values and beliefs essential to composition for our young writers. Technology, then, is never just a neutral enhancement; it changes both the writing and the writer (Lynch & Kinsella, 2013).

From the digitally rhetorical and pedagogical perspective that informs this work, technology use is also continuously related to the *rhetorical situation* within which it is applied (Morrison, 2010; Palmeri, 2012; Selfe, 2007). (Consider that we only rarely respond to a text message with a phone call, even though we are usually technologically able to; doing this might be described as "rhetorically inappropriate.") At its roots, then, technology use may be defined by the rhetorical situation it serves and the rhetorical context in which it is being enacted. Our RQ2 explored the purpose, audience, and context in which young adolescent writers employed various technologies— the rhetorical situations within which they employed these technologies.

Finally, as evident in RQ 3, we were interested in the *value* (i.e., ways of thinking, believing, and valuing, using Gee's terminology) young adolescent writers assigned to writing and the multimodal creations they developed with particular technologies and how their value system compared to the evaluation of their work by the other, the insights these writers gleaned through the comments they had received from the members of the larger Discourse community (Gee, 1989, 1990) whom they were addressing, namely, the audience. Echoing Lynch and Kinsella's (2013) rhetoric of technology, we saw the value these young adolescent writers assigned to their multimodal creations as a form of "agency," enabling them to contribute to "inventing and disseminating" (p. 4) their creations and the discourses around these creations and ideas contained in them. We discuss these contributions in the findings.

Methodology

Data Collection

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Sample and the context. Our sample consisted of 66 schoolchildren attending a middle school in a large city in the American South. One hundred percent of the students in our cohort were eligible for the free lunch program. The student sample we collected is a convenience sample (Blair et al., 2014) in that we worked with those teachers who responded affirmatively to our invitation to participate. The school was chosen because it was a middle school in a major urban area accessible to us and it served a disadvantaged student population.

Participant demographic characteristics. Our student participants were entirely nonwhite, and overwhelmingly Black. Of the 66 respondents, 4 (6%) reported that they were Latino/a, one (1.5%) reported that they were Native American, one (1.5%) reported as Asian, and 62 (94%) reported that they were Black or African American. Because the students were permitted to report more than one ethnicity or race, in one case (1.5%) a student self-reported as more than one race (Native American, Latino/a and Asian).

All 66 participants (100%) reported as belonging to either the male or female gender (male=30, female=36). There were 15 participants from the 6th grade, 29 participants from the 7th grade and 22 from the 8th grade. However, while girls were equally represented in each grade level (12 participants each), the boys' participation varied greatly, with just three boys in the sixth grade, 17 in the seventh grade and 10 in the eighth grade. 14 of the 15 sixth graders (93%), 27 of the 29 seventh graders (93%), and all 22 (100%) of the eighth graders identified English as the language they felt most comfortable with. A plurality, or 25 of the mothers (38%) and 29 of the fathers (44%) had graduated high school or had their General Equivalency Diploma (GED). In terms of the highest degree for either parent, one mother had a professional

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degree (MD or JD) (1.5%); and one mother and three fathers had a doctoral degree (Ph.D., Ed.D., D.D. etc.) (1.5% and 4.5%, respectively).

The survey instrument. The 20-minute survey, which was administered in paper form, requested basic demographic information, including grade (6th, 7th or 8th grade), race (with multi-race options permitted), parents' educational background (from grade school through doctorate or equivalent), and self-reported language competency (multiple languages permitted) and the primary language spoken at home.

The background section of the survey inquired about access to technology at home and school and about the precise technologies with which the students were familiar, including hardware, such as video cameras, phones, and laptops, and software applications, such as those for text, video, audio, graphics and digital photography. We refer briefly to the results from this portion of the survey in our discussion in this work.

The survey then proceeded to probe the students' creative process in depth (10 questions, employing matrix and point-scale type items). One such query investigated types of creations (e.g., video, photo or music creation), *How many times did you produce any of the following creative pieces in the past year?* and *How did you make the following creative pieces in the past year? (Hand-drew, Used Software, Both).* Another inquired into the venue (blog, wiki, website, twitter, Myspace, Instagram, Pinterest, Snapchat, YouTube), *Where did you post any of your creative pieces in the past year?* and the audience selected for dissemination, *Who did you make your creative pieces for in the past year?* ("teacher," "online friends," "offline friends," "family," "myself only," and "everyone else").

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We also queried the students about the purpose of their creations, *Why did you produce the following creative pieces in the past year?* ("for school," "fun," "to learn," "to be part of a group") and their attitudes toward writing in general, *Which of the following statements represents how you feel about writing?* (from "*I hate writing*" to "*I love writing*"); and their work, that is, how pleased they were with their creations, *How pleased were you with the creative pieces you produced in the past year?* (from "very pleased" through "very displeased") and what they valued the most about their creations, *What did you like the most about your creative pieces?* (the "visual impact," "ideas/message," "structure/design," "audience comments," "technical skills").

In addition, these pre-adolescents were asked to comment on what they thought the audience liked the most about their creations, *What did other people tell you they liked the most about your creative pieces?* (the visual impact, ideas/message, structure/design, audience comments, or technical skills). The purpose of the latter questions was to compare the value systems, contexts and audiences that young adolescents assigned to their creations with the evaluation systems that others associated with their creations. As such, these questions probed into the larger Discourse communities whom the young adolescents had presumably been addressing or were expected to address.

Data Inspection and Analysis

The data were collected from the 66 surveys and were entered into SPSS software for inspection, cleaning and initial analysis. However, the tests we performed on the survey responses were mostly non-parametric, because we were primarily working with categorical and

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ordinal data.[1] Because the cohort tended to be young and inexperienced with surveys, some errors emerged, such as leaving questions blank when they meant to convey that they did not use the technology in question. Where such errors occurred, we grounded our decision on intent based on the number of exactly similar errors in other survey responses from the same cohort.

We also received missing data responses (11 missing for the mothers, or 16.6%, 18 missing for the fathers, or about 26%; n=66) related to their educational level. Since the non-missing educational statistical data on the education level of parents in our sample roughly mirrored the ratios in official state figures, we used sample imputation, moderated by these state and federal data, to construct an estimate of the missing data (Liao et al., 2014).

Survey Instrument Validity

To ascertain face and content validity, that is, checking for the "instrument's ease of use, clarity, and readability" as well as "accuracy, relevance, and breadth of knowledge" regarding the constructs within the questions asked and variable measures (Burton & Mazerolle, 2011, p. 29), we consulted with a group of colleague researchers and teachers who taught in middle school and whose interests and expertise are in writing and middle-level language arts. Several revisions, eliminations, or additions of the questions (and individual items) were made, resulting in a shorter and more focused survey than the original instrument, with "kid-friendly" language and directions.

Limitations

[1] Two exceptions were Query #12, "How comfortable are you using the following software or apps?" and Query #21, "How pleased were you with the creative pieces you produced in the past year?" because the permitted responses exhibited a true midpoint and therefore were susceptible to the Central Limit Theorem, permitting parametric analysis.

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The survey was administered to the students from one middle school, and would therefore not be statistically generalizable; however, our sample is representative of that school's total population. According to the district school profile, the student gender breakdown at the school was 49% female and 51% male. Ethnically, the school was 98% Black and 2% Latino. These statistics hewed closely to those in our survey. One hundred percent of the students in our cohort were eligible for a free lunch. The school served just over 300 students in grades 6 through 8. As with all surveys, there is also the issue of self-reporting bias (Blair et al., 2014) where the participants might have provided socially desirable responses, or they may not have been able to assess accurately their multimodal work. The survey question that asks the participants to report what others think of their multimodal work was used to minimize to some degree the latter effect.

Findings

We organized our findings around the research questions that address these areas of interest: 1) the forms of multimodal creations; 2) the audience, purpose and context for multimodal creations; and 3) the value systems assigned to writing and the multimodal creations.

The Forms of Multimodal Creations (RQ 1)

Modes and modalities. Since we were interested in the kinds of creations young adolescents produced and the modes and modalities they employed in these compositions, we asked the students how many times they had made a video piece, music piece, photo piece, comics piece, fan fiction piece, animé or manga piece, digital story, or another type of creation in the year prior to the administration of the survey (see Table 1 in Appendix). We reported not only the frequency of use as an aggregate number, but also how many students refrained from

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the use of a particular multimodal type. We also grouped frequencies that were above zero use, namely "1-2 times" "3-4 times" and "5 or more times."

The most common types of multimodal creation reported by our young adolescent creators were, in descending order, photos (54, or 81.8% of students), videos (50, or 75.8%) and music (47, or 71. 2%). In descending order, the remainders in popularity of use were digital stories, comics, fan fiction, animé/manga, and "other." There is an important caveat, however. Popularity of use did not fall off evenly; the least popular named multimodal type, animé/manga (18.2%), was still used by 12 students 1-2 times, but significantly fewer (4) students reported heavier ("5 or more times") use of this type.

With less used types of creative works, the overall *frequency of use* was less, but this was due to a *decreasing total number of participants* using them but using them more often. Conversely, with respect to photos, videos and music, a majority of respondents (47, or 71.2%) did not make *any* of these top three types of multimodal creations, but the consistent employment of these modes by the remaining students made them the most popular type used overall.

Interestingly, the percentages of those who did not create complex multimodal creations were rather high in certain composition types. These included in descending order, animé/manga (65.2%), fan fiction (62.1%), comics (57.6%), and digital story (53%). Additionally, the vast majority (63 respondents, or 95%) reported that they had created no "other" type of multimodal composition.

Modality Moves. We were also interested in how often students moved from one modality to another to create compositions, that is, whether the desire in students to create digital multimodal compositions tended to "jump" categories; or whether the impetus to create one kind

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of composition stayed with that particular modality. We ran non-parametric correlations (Kendall's tau) between and among the differing categories of multimodal compositions, and we found that with a rigorous level of significance (.01) those students who frequently created certain kinds of digital multimodal compositions tended to frequently create other types as well. For example, those who created video compositions were moderately likely to create photos (.379), comics (.395), and music (.311). Weaker but equally significant correlations were found between video makers and those who created digital stories (.267), fan fiction (.229), and animé/manga (.224). A moderate to strong correlation was also found for comics creators and other genre makers; comics creators tended also to create fan fiction (.576), and music (.454) (all correlations are non-parametric at $p \leq .01$).

The use of non-alphabetic text. Another aspect RQ 1 explored was the frequency in which non-alphabetic texts were used in young adolescents' multimodal creations. We define non-alphabetic texts as those that do not include significant or large amounts of textual information. For the purposes of our assessment, we limited this to video, photo and musical compositions. As indicated again in Table 1 in Appendix, we found that among our 66 respondents, photos were the most commonly created non-alphabetic text composition, as 30 students, or 45.5%, said they created them 5 or more times and 54, or 81.8% said they had taken at least one photo. The second was video, where 19 students, or 28.8%, had taken 5 or more videos and 50 students, or 75.8% had taken at least one video. Third was music, where 15 students, or 22.7%, said they used 5 or more examples of this element, and 47 students, or 71.2% said they had created at least one musical composition.

The Purpose, Audience, and Context for Multimodal Creations (RQ 2)

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The overarching rhetorical context research question included examination of the purpose, audience and venues young adolescents chose for publishing their multimodal creations.

The purpose. We asked our participants for what purpose they produced their creative multimodal pieces, breaking them down into videos, music, photos, comics, fan fiction, animé/manga, digital stories, and "other." The choices we provided were "for school," "for fun," "to learn" and "to be part of a group" (see Table 2 in Appendix). We did not provide a neutral choice, but we interpreted leaving the question blank as being "none of the above." We also allowed for multiple categories for each affordance (technological genre).

Overwhelmingly, in every category (see Figure 1 for the Stated Purpose for Top Three Creations), the most commonly selected choice as to the purpose of the creation was "for fun," except in the "other" category, where "for fun" was second only to "to be part of a group." With video, it characterized 34 impressions (51.52%), or a bare majority of impressions; in music, it characterized 31, or 46.96%; in photos, 36, or 54.55%, a majority of impressions; in comics, 25, or 37.88%; in fan fiction 22, or 33.33%; in animé/manga, a similar 22, or 33.33%; in digital stories, 17, or 25.76%, and in "other" creations, 6 or 9.09%. Except for the "other" category, "for fun" constituted either a plurality or majority of reasons given for the undertaking of the multimodal creation.

Interestingly, while students were permitted multiple responses, they only rarely selected "for fun" in conjunction with another value. For video, 2 or 3.03% gave "for school & for fun" and 2, or 3.03% gave "for fun & to learn." In music, 1 or 1.52% gave "for fun & to be part of a group" and 1 gave "for fun & to learn." In photos, 1 gave "for fun & to learn" and 1 gave "for

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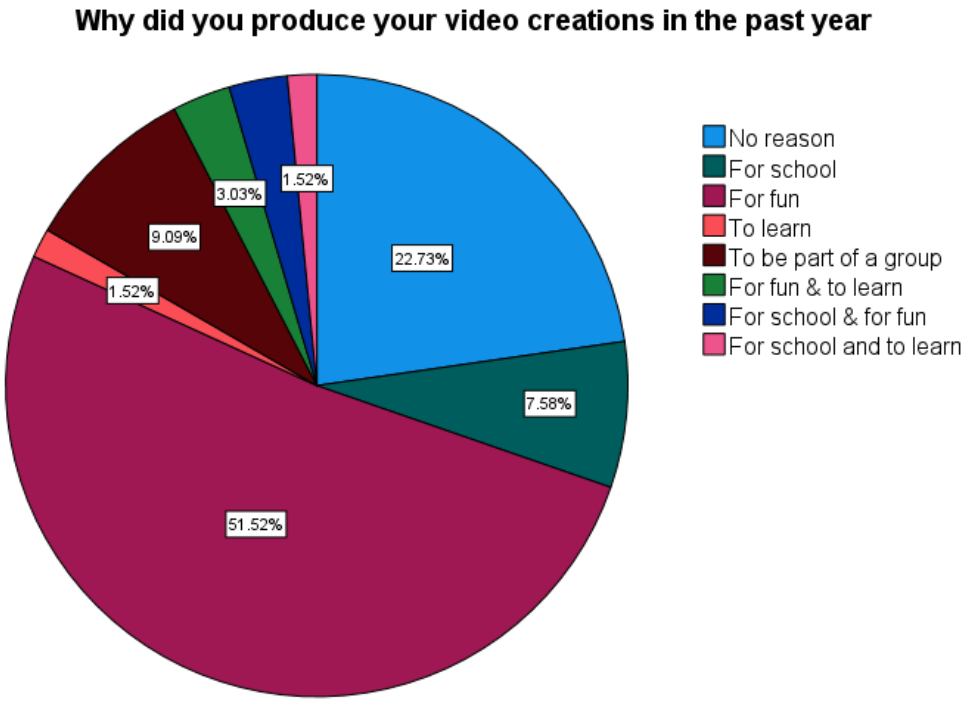
school & for fun." In digital stories, 1 gave "for fun & to learn," and 1 gave "for school & for fun."

Another finding with this research question is that the purpose query was left blank by a comparatively large number of children. Fifteen, or 22.73% left it blank for video; 20, or 30.30% left it blank for music; 16, or 24.24% left it blank for photos; 27, or 40.91% left it blank for comics; 30, or 45.45% left it blank for fan fiction; 29, or 43.94% left it blank for animé/manga; 28, or 42.42% left it blank for digital stories. A majority, 51, or 77.27% left it blank for "other creations.

Figure 1

The Adolescents' Stated Purpose for Top Three Creations



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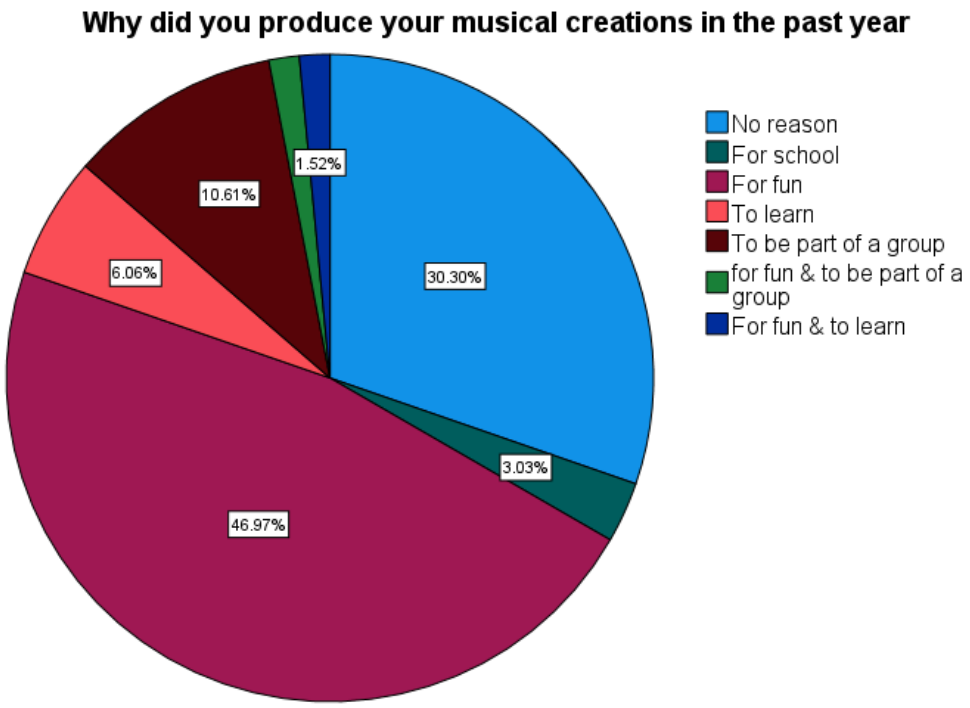

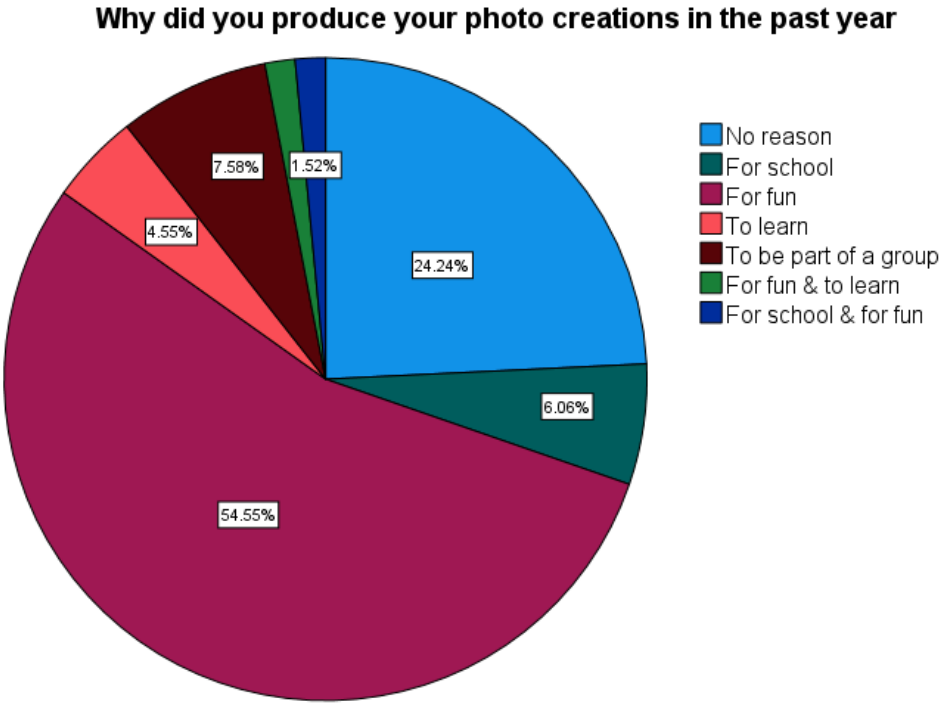

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Note. These are most commonly selected purpose choice for the top three creations.

The audience. We then asked our respondents for whom they had created their multimodal compositions in the past year. The possible responses were "did not respond," "teacher," "online friends," "offline friends," "family," "myself only," and "everyone else (the public)." We asked them to associate their chosen audiences with the particular modes and modalities, namely video, music, photos, comics, fan fiction, animé/manga, digital stories or "other" through which they had expressed themselves. For reasons that were not immediately apparent, many students chose not to answer the question. An average of 27 participants (40.7%) over all eight categories of mode/modality provided "did not respond," or declined to answer. The number who chose not to respond was higher than any other choice provided for this question (see Figure 2).

Other than "other," the most common chosen response (see Figure 2 for the Stated Top Audiences for Adolescents' Creations), was "everyone else (the public)," chosen in four categories, comics (14, or 21.2%), fan fiction (12, or 18.2%) animé/manga (14, or 21.2%) and digital stories (12, or 18.2%). The second most commonly offered response was "myself only," in three categories, video (11, or 16.7%), music (14, or 21.2%) and photos (13, or 19.7%). See Table 3 in Appendix for details.

Figure 2

The Adolescents' Stated Top Audiences for Their Creations

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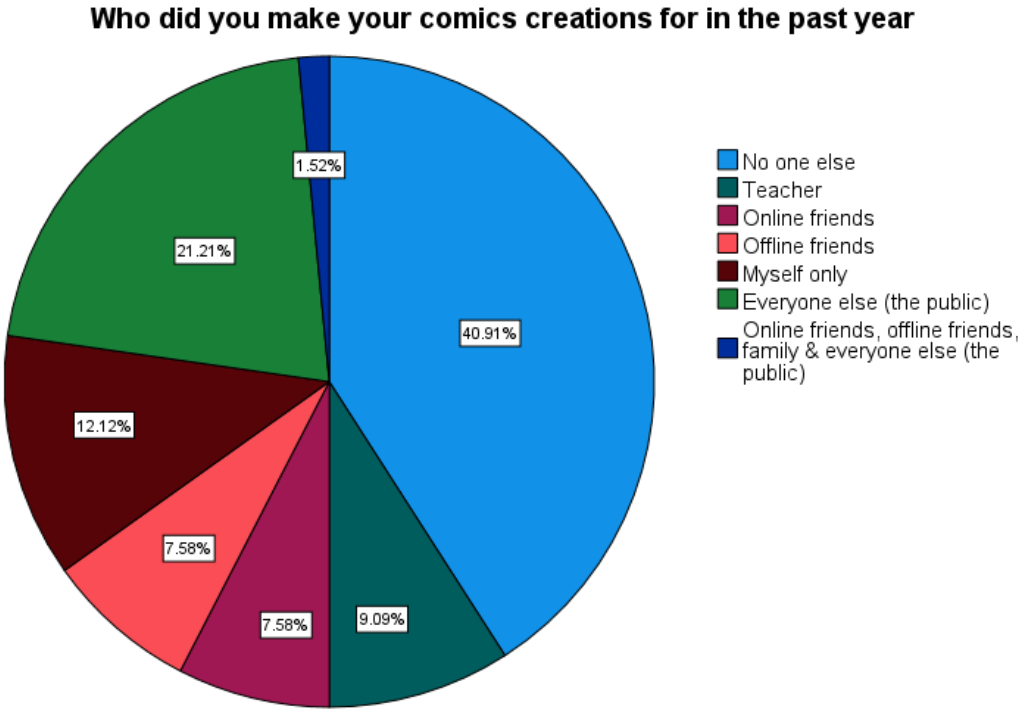

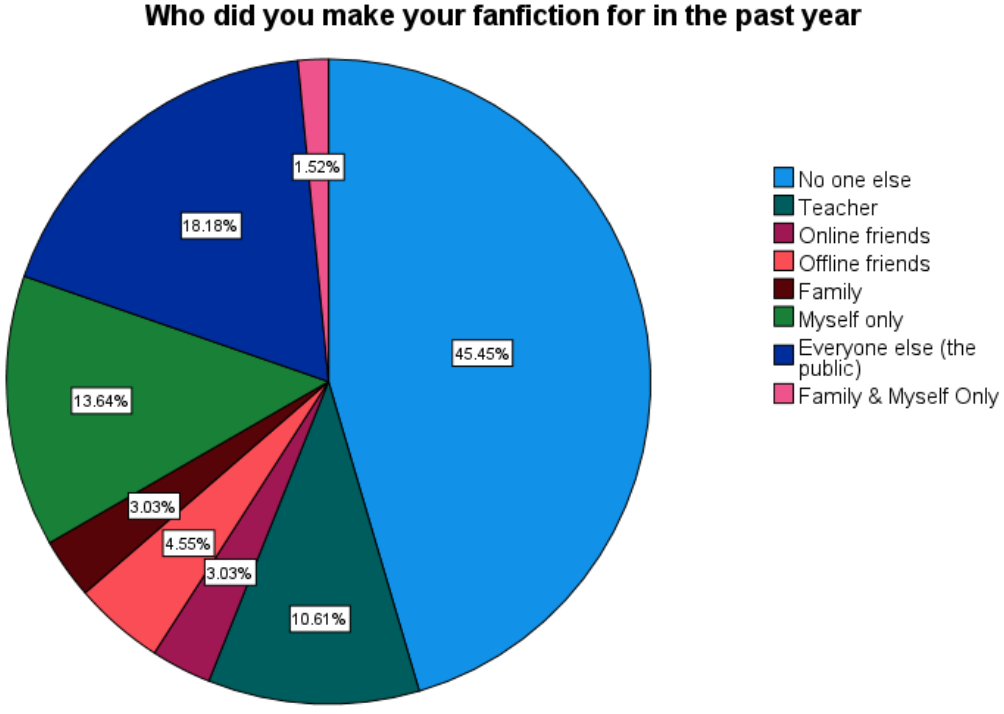

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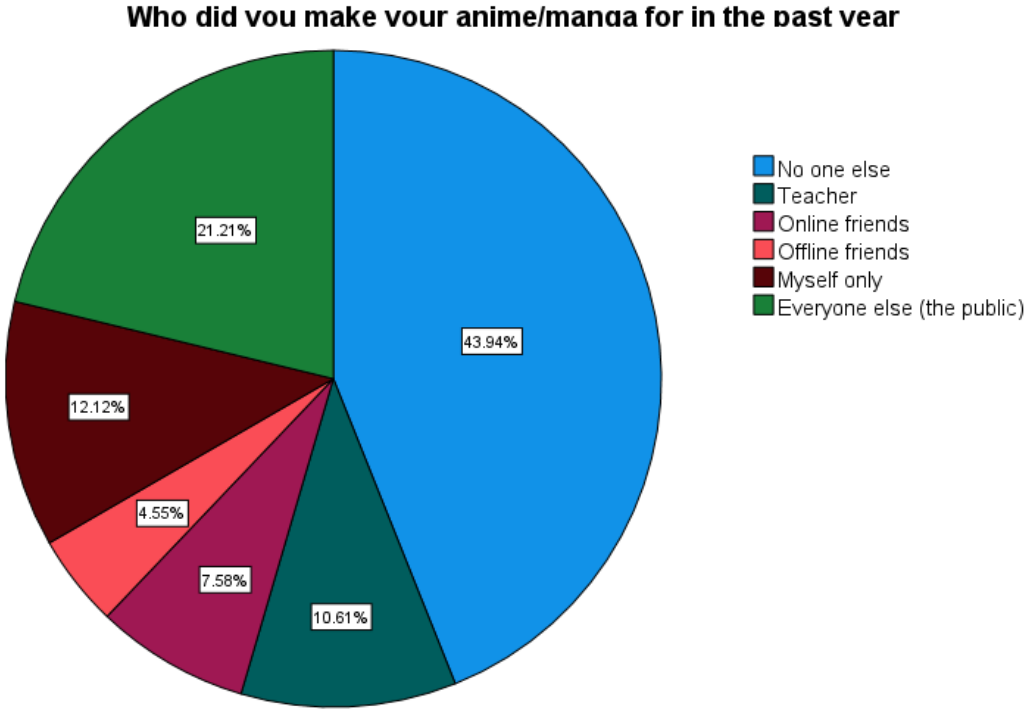

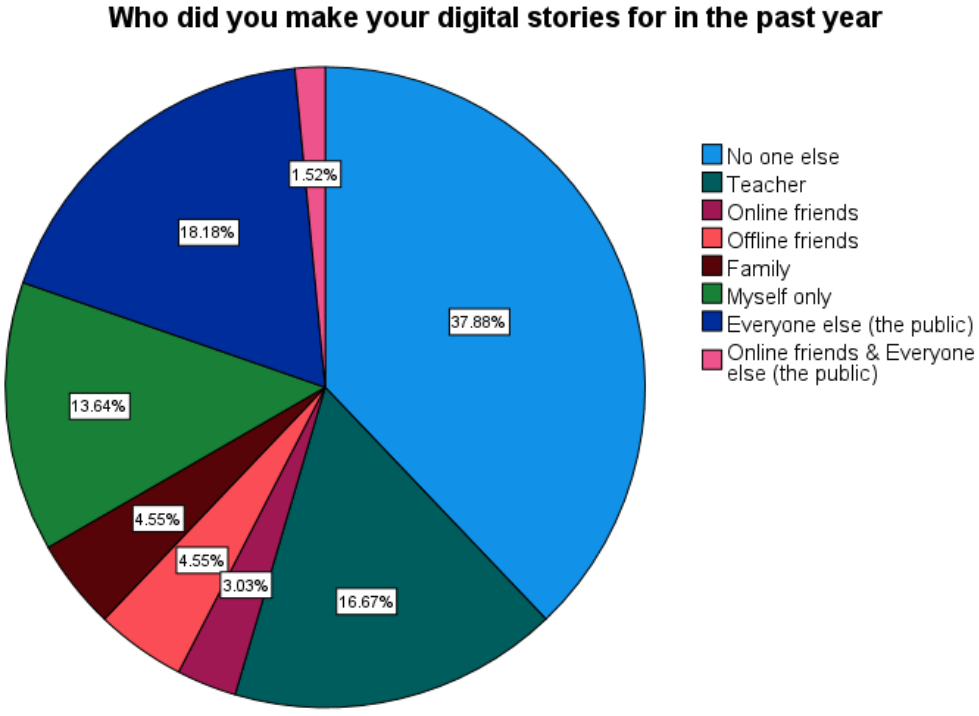

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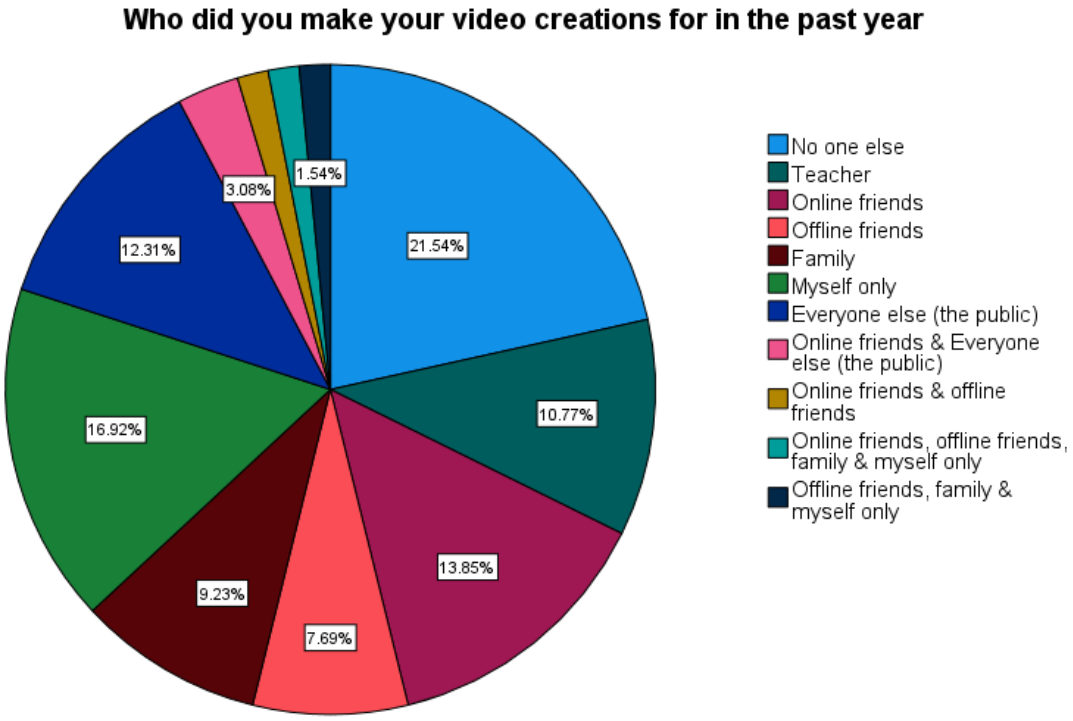

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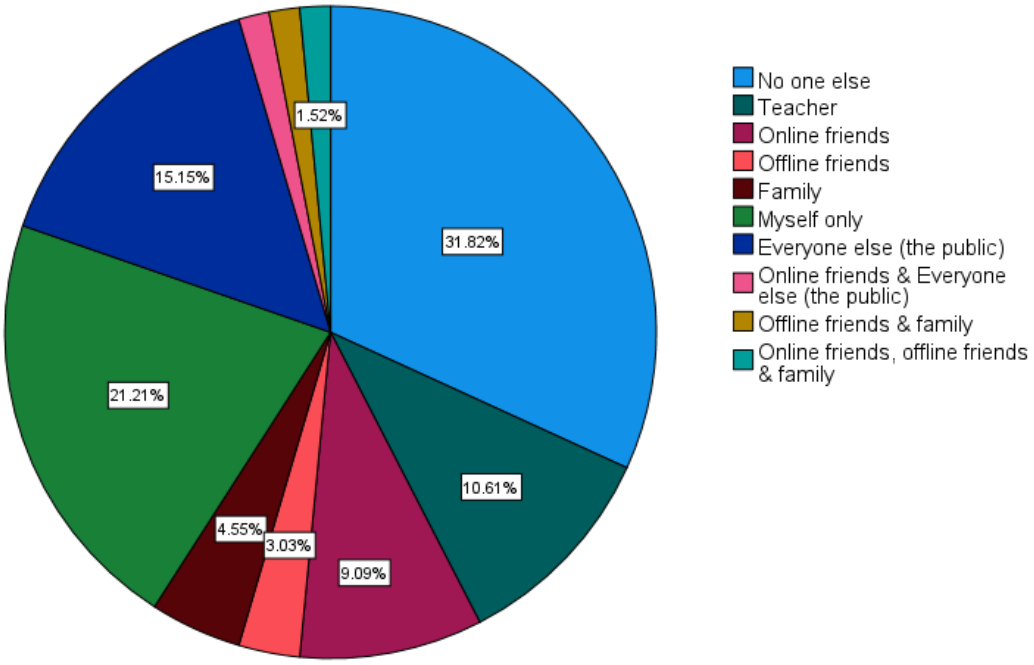
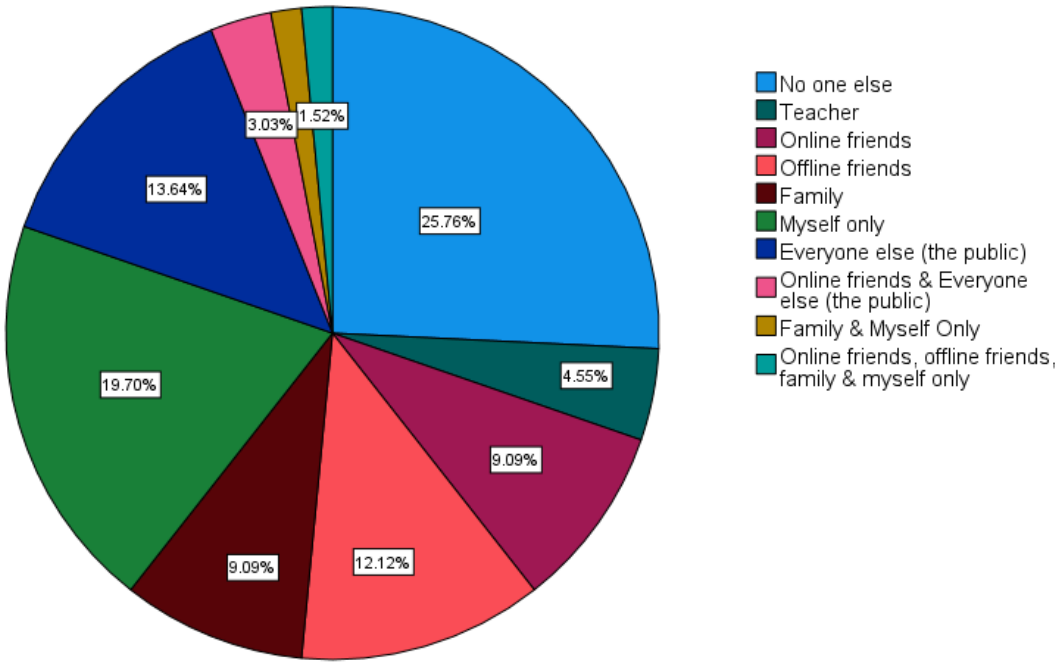
Who did you make your musical creations for in the past year



Who did you make your photo creations for in the past year



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Note. These are responses only from those who chose to respond to the audience question.

The venue. Finally, we wanted to know where the multimodal compositions were distributed and published. We asked this separately for the different modes/modalities of creativity that were available to the students. As above, these were video, music, fan fiction, digital stories, photos, comics, animé/manga and "other." We gave the following options as to where the students' work might be published as a destination: blogs, wikis, websites, Twitter, Facebook/Myspace, Instagram and YouTube. We permitted them to choose multiple categories and we also permitted the response, "did not post." (See Table 4 in Appendix). For fan fiction (26, or 39.4%) made the selection, "did not post." Twenty-six, or 39.4% also made this selection with respect to animé/manga. Forty-four, or 66.7% of those who chose the modality "other," also chose "did not post" (see Figure 3).

Of those who did post, the combination of Instagram and YouTube proved to be the most popular; it was where 21 music participants (31.8%), 24 fan fiction creators (36.4%), 26 digital story writers (39.4%), 16 creators of "other" material (24.2%), 25 comics creators (37.9%), and 26 creators of animé/manga (39.4%) chose to place their work. The second most popular choice was Instagram by itself, which was chosen by 17 video creators (25.8%) and 22 photo creators (33.3%). Much smaller numbers were posted for the combinations Instagram/Snapchat/YouTube, websites/Instagram/ Snapchat/YouTube, and Facebook/Instagram.

Figure 3

The Adolescents' Stated Top Venues for Their Creations

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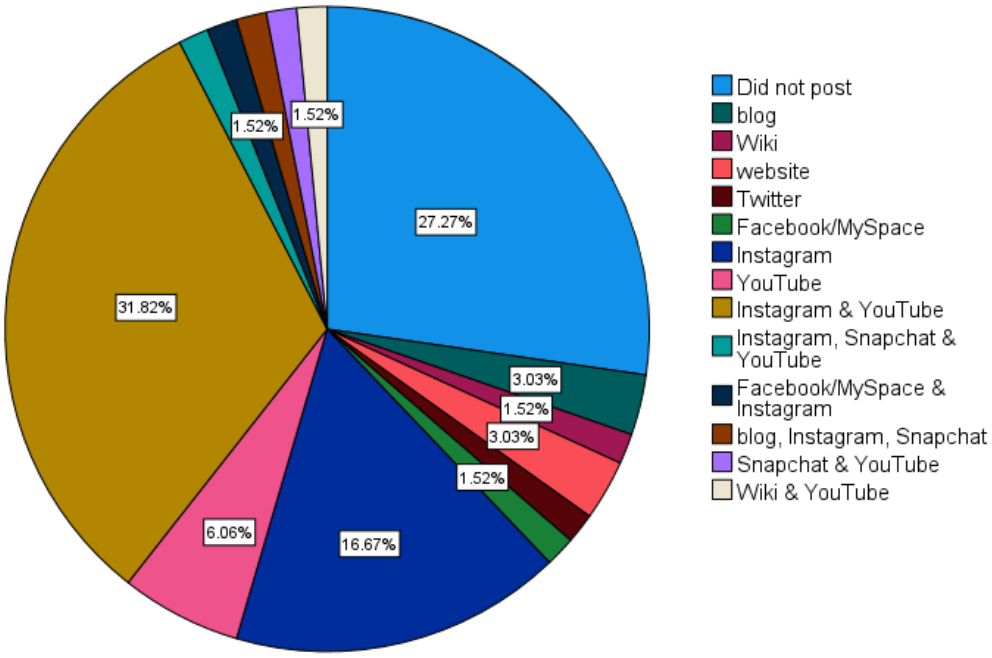
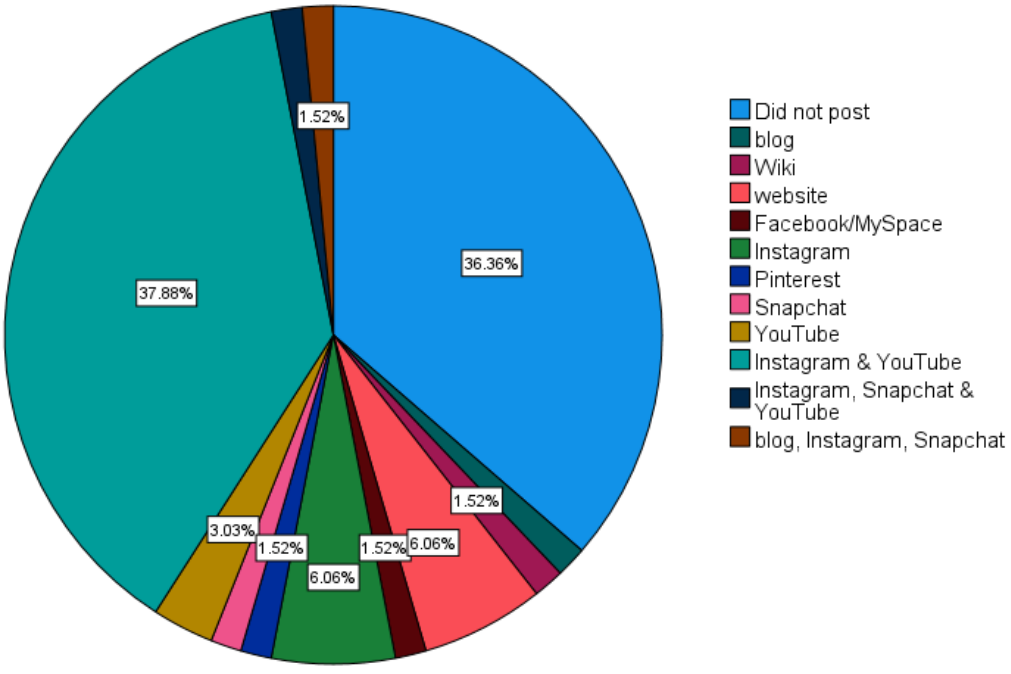
Where did you post any of your musical creations in the past year



Where did you post any of your comics creations in the past year



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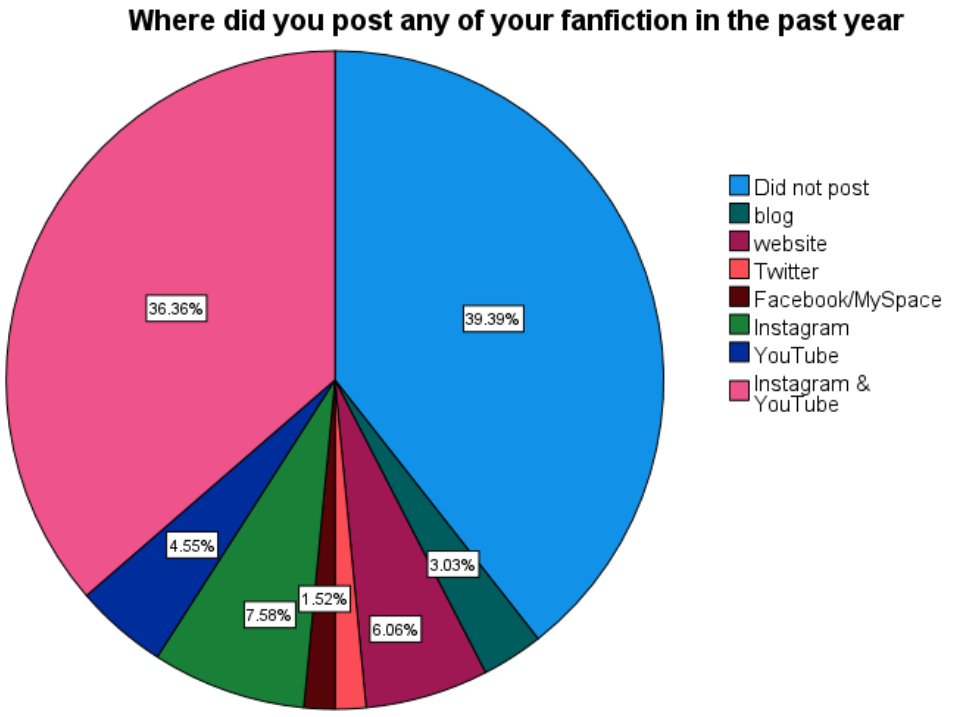

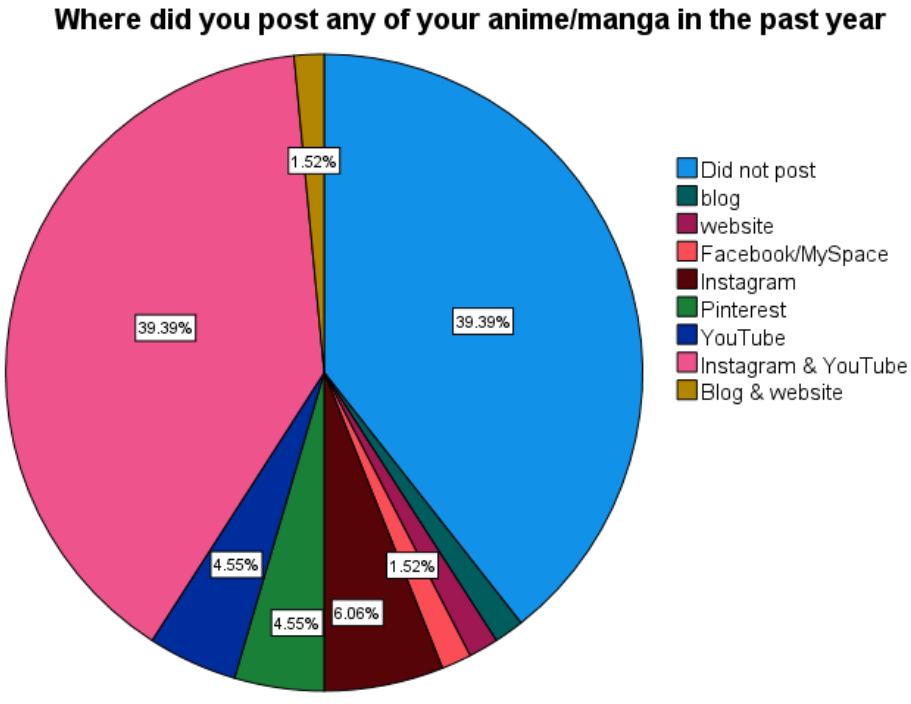

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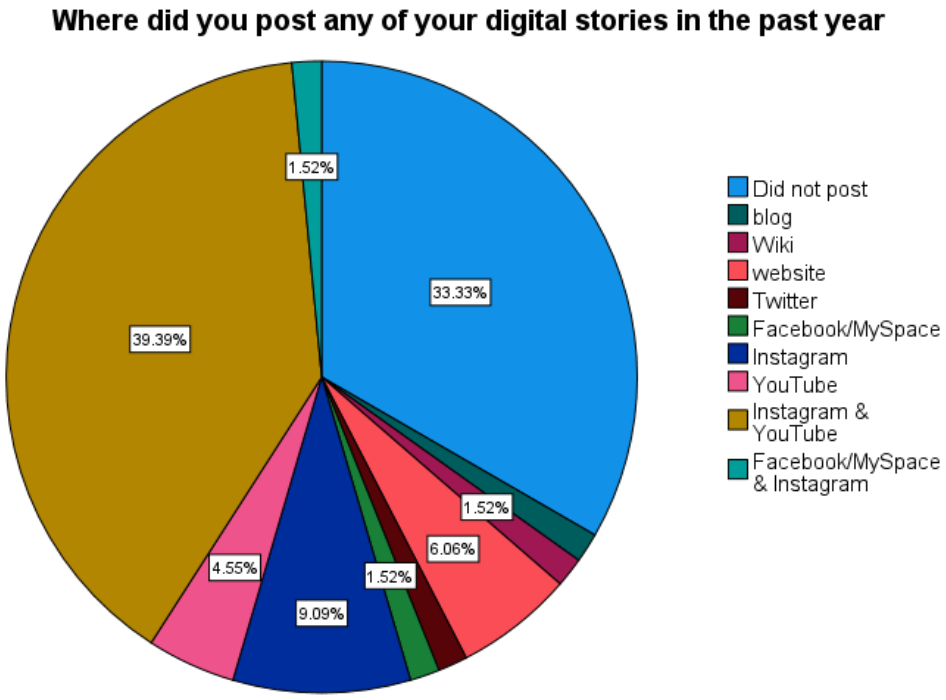

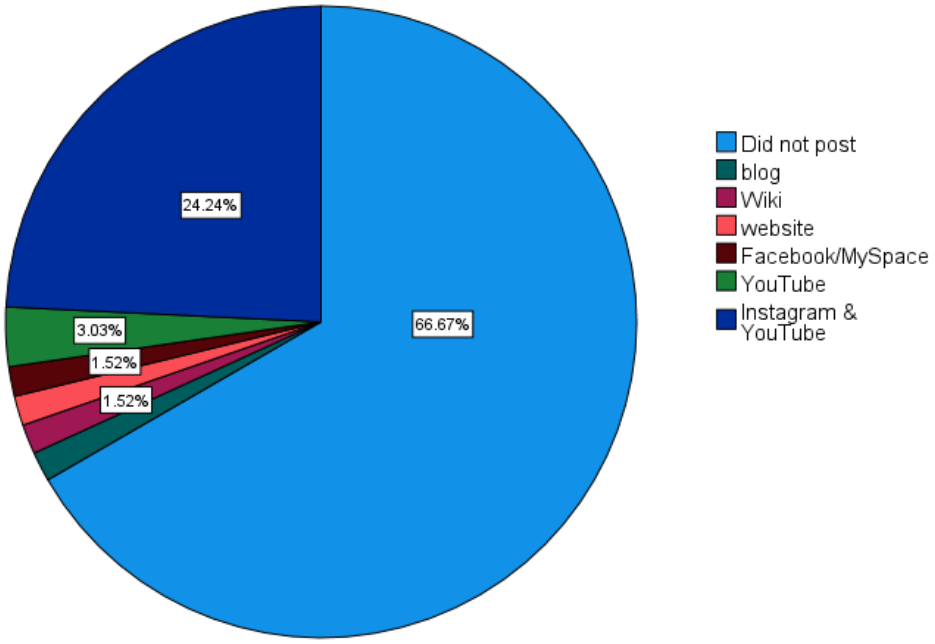

Note. These are responses only from those who chose to respond to the venue question.

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The Value Systems Assigned to Writing and Multimodal Creations (RQ 3)

We approached the evaluation of the ways of using, thinking, and acting upon (Gee, 1989) the "tools and technologies" (Gee, 1990) in young adolescents in a multifaceted way, probing first into the attitudes toward writing in general (from "I hate writing" to "I love writing"), followed by asking young adolescents other affect questions such as how they felt about their multimodal creations (from "very pleased" through "very displeased" and "what they liked the most"), and finally what they learned others thought about their work.

Young adolescents' attitudes toward writing. Concerning the desirability of writing – as that term was understood by the students - we found that, in the 6th grade, among the 15 students reporting, there was relatively little variability among the responses available to the participants. That is, for "I hate writing," 1 participant, or 6.67% responded, for "I dislike writing," 3, or 20% responded, "I kind of dislike writing," captured 2, or 13.33% of respondents; "I kind of like writing," had 3, or 20% of respondents; "I like writing," gathered 2, or 13.33% of respondents; and "I love writing" had 4, or 26.67%of respondents. However, in the 7th grade, 10 out of 29 students (34.5%) reported that they "kind of liked writing;" 8 (12%) reported that they "like" writing, and 5 (7.6%) that they "love" writing. In the eighth grade, four (6%) reported that they "hate" writing, two (3%) that they "dislike" it, four (6%) that they "kind of like" writing, two that they "like" writing and 10 (15%) that they "love" writing.

Overall, 12 of 30 boys said they "kind of liked" writing, six said they "liked" it, and three that they "loved" it. Only five of 36 girls said they "kind of liked" writing, six said they "liked" it but 16 said they "loved" writing.

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Young adolescents' evaluation of creative pieces. Overall, students reported that they were "somewhat pleased" with their own work, never evaluating it poorly for any of the modalities asked about (video, musical, photo, comics, fan fiction, animé/manga, digital story and "other") (see Table 5 in Appendix). Video creations received a mean score of 3.98, just under the response of "somewhat pleased"; music creations received a mean score of 3.92, below, but also close to the response "somewhat pleased,"; photo creations received a mean score of 4.02, just above "somewhat pleased"; comics creations produced a slightly lower mean score of 3.80, below "somewhat pleased"; fan fiction creations produced the lowest mean score of 3.18, just above the midlevel "neither pleased nor displeased"; animé/manga creations produced the score of 3.77, closer to a "somewhat pleased" than "neither pleased nor displeased"; digital stories received a mean of 3.92, just under "somewhat pleased"; and students declined to respond regarding the "other" category, preventing us from drawing a conclusion there.

The second point of evaluation was which characteristic(s) students liked the most about their pieces. The students could choose *none*, *visual impact, ideas/message, structure/design, audience comments, technical skill* or any combination of these. However, in every creative mode inquired into – video, music, photos, comics, fan fiction, animé/manga, and "other creative pieces" – the choice *none* was either a plurality or majority of the choices provided (see Table 6 in Appendix).

Specifically, from our *n* of 66, the number who wrote "none" ranged from 21 for video creations, to 34 for animé/manga and to 49 for "other" creative pieces. Beyond *none*, no other value was found to be present in as high a proportion for each modality. Interestingly, of those who did

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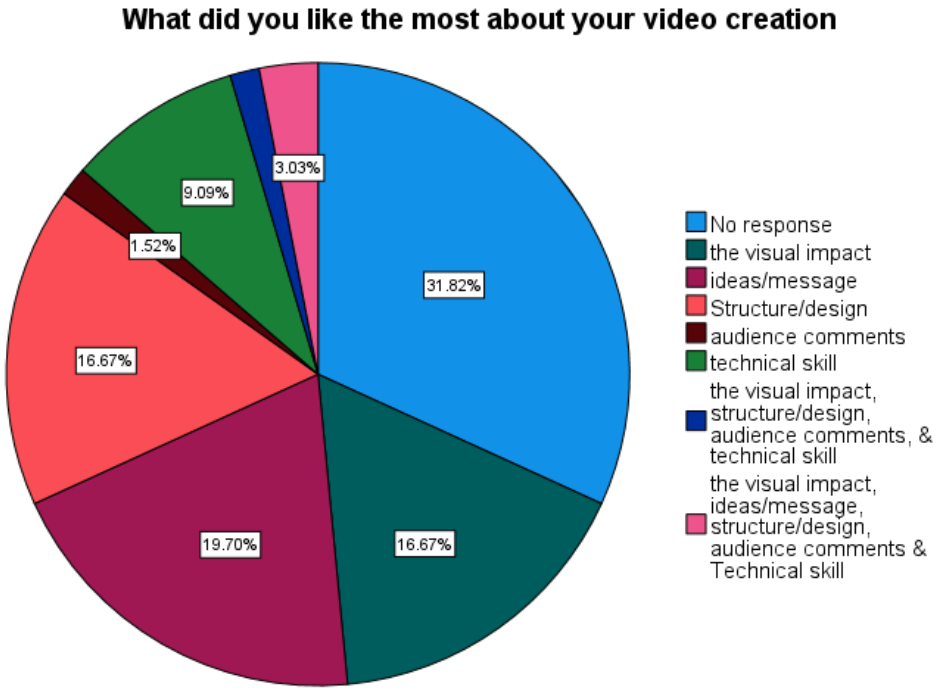
choose a characteristic, in the modality of video, *ideas/message* dominated, with 13 choosing this, and in music, *ideas/message* also dominated, with 15 selectors. *Visual impact* dominated in photo creation, with 12 choosing this; and 10 chose *structure/design* in comics creation. In fan fiction, 10 chose *ideas/message* and in animé/manga, nine chose it. In digital story, however, both *visual impact* and *structure/design* were chosen by nine participants. In the category of other creative pieces, six chose *structure/design* (see Figure 4).

Figure 4

What Adolescents Liked the Most about their Creations



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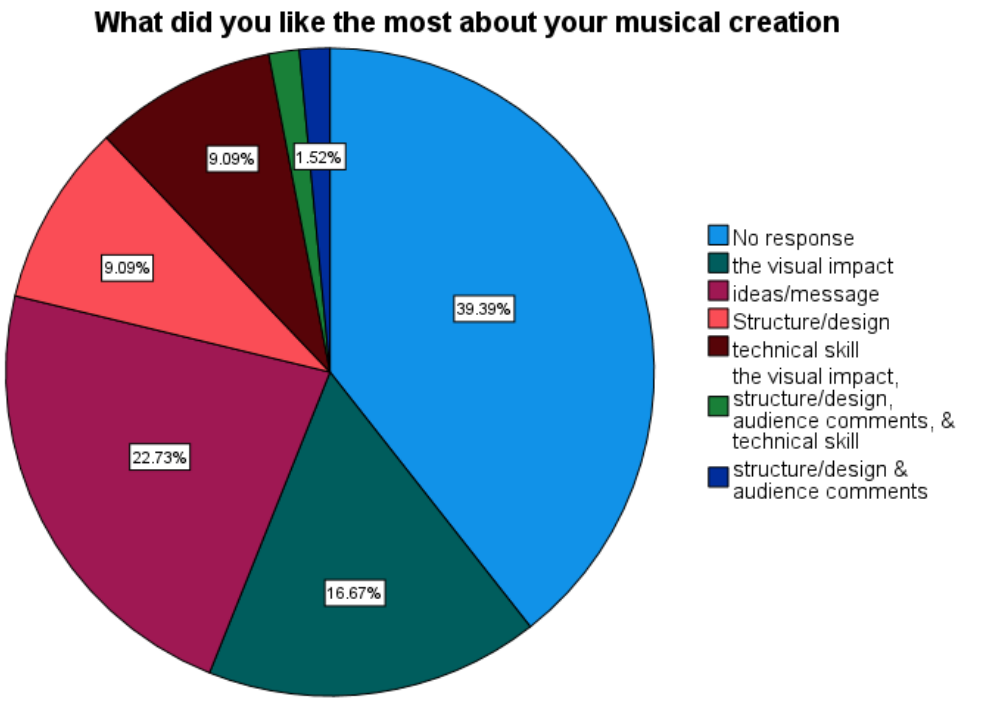

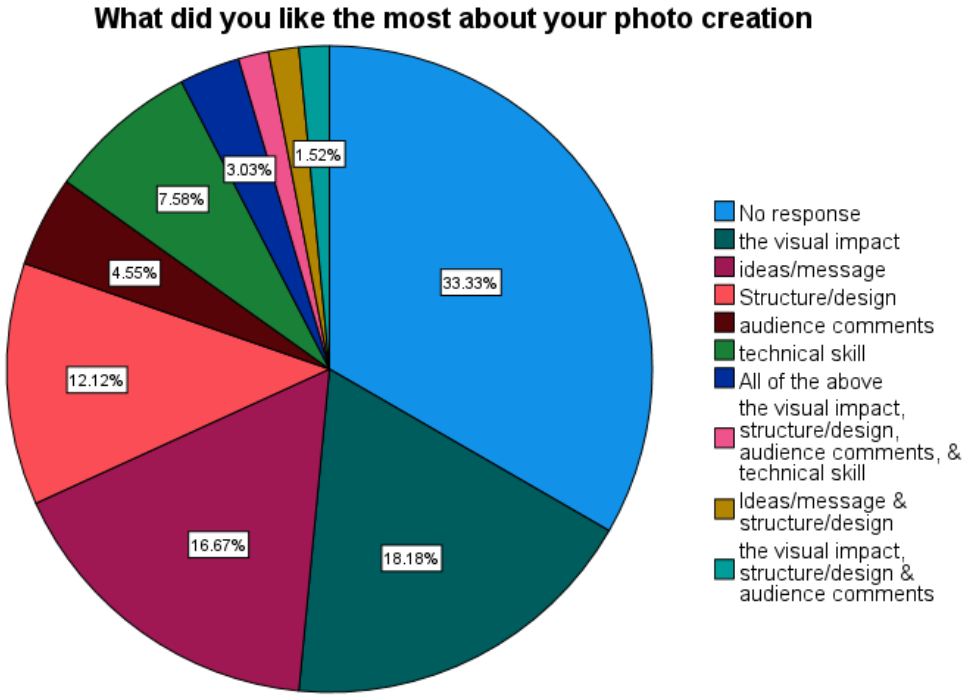

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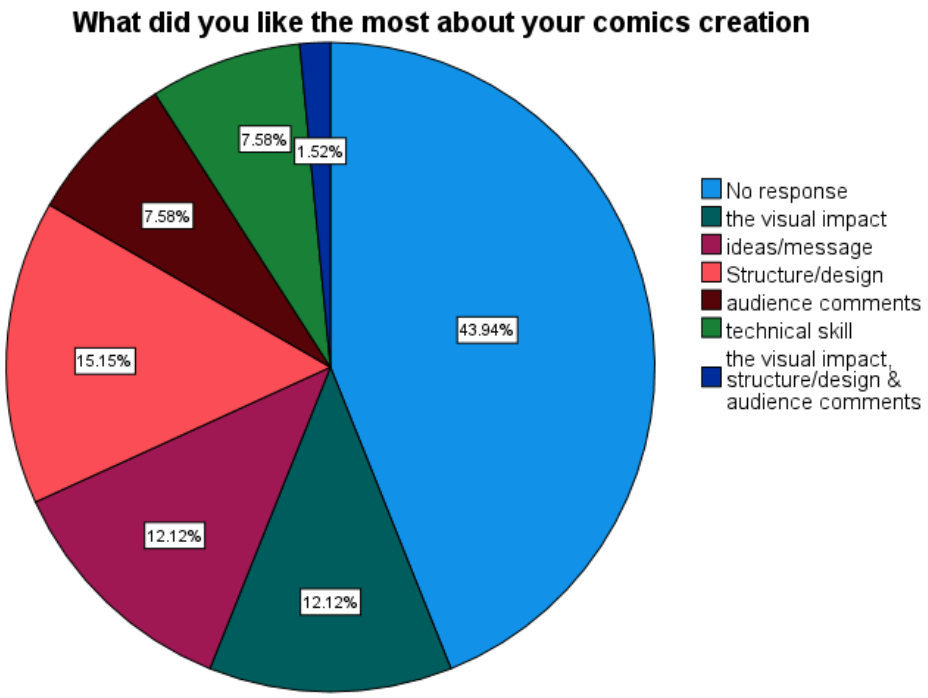

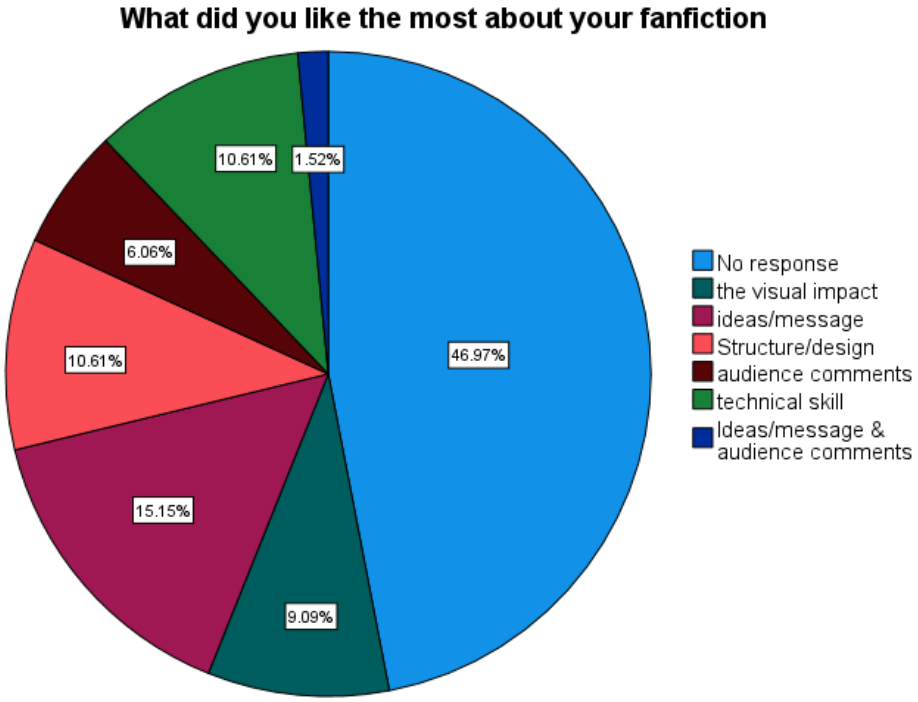

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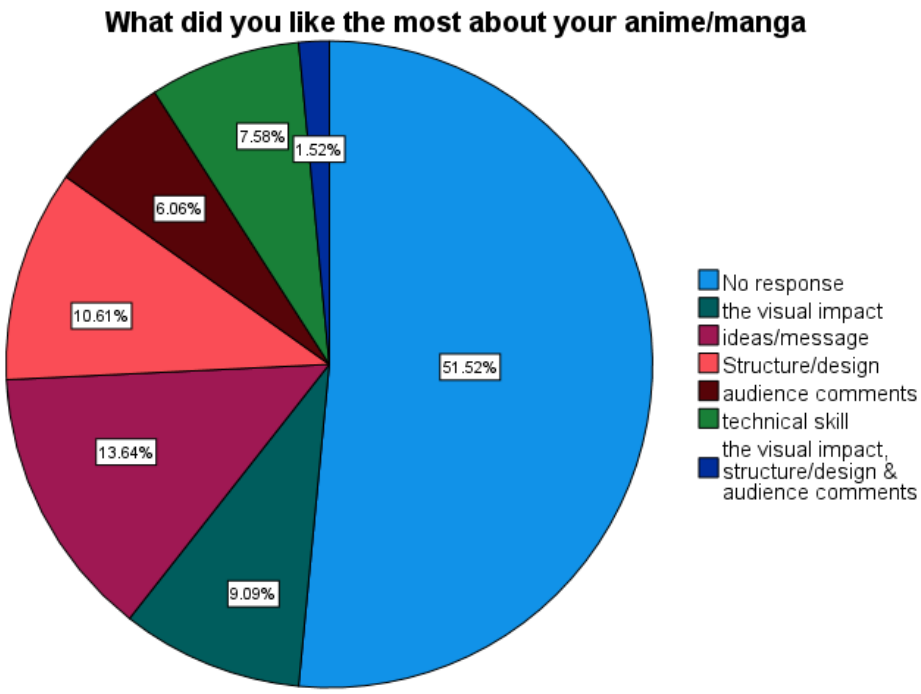

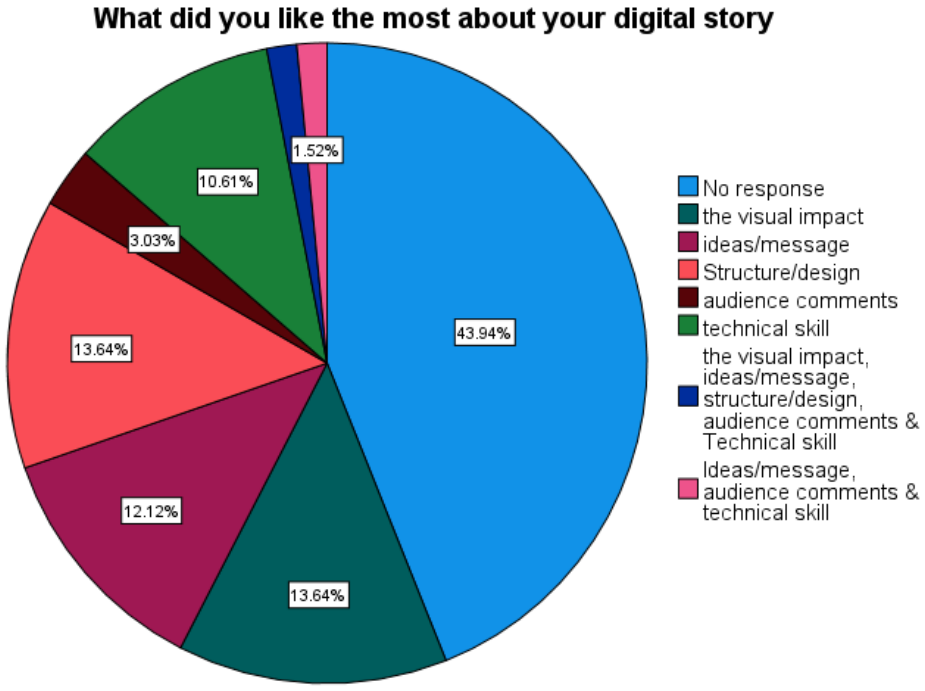

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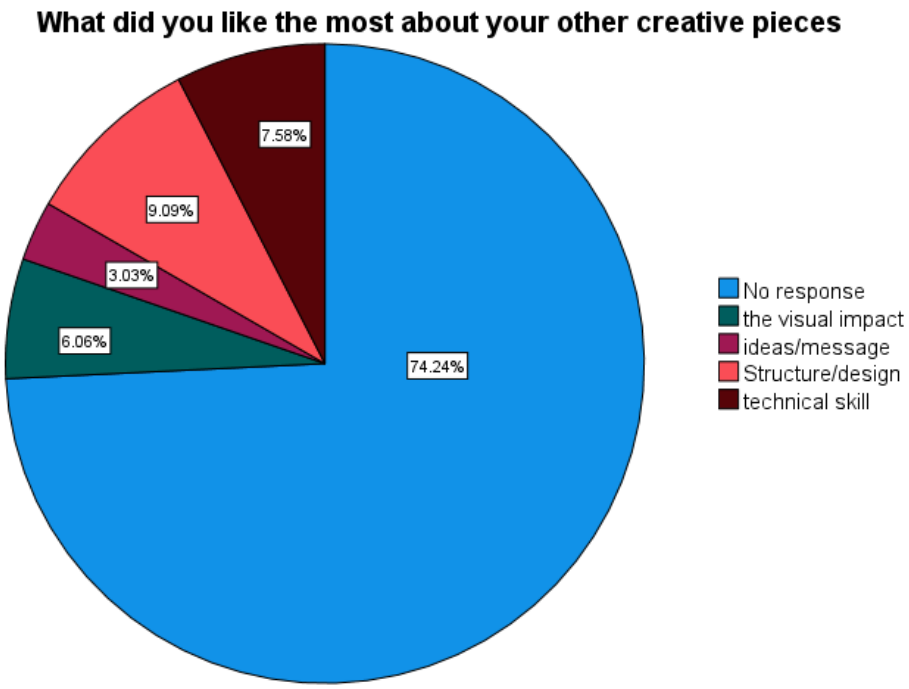

Others' evaluation of young adolescents' creative pieces. The third point of evaluation was which characteristic(s) the creators felt other people liked. The choices were identical to those for self-evaluation, i.e., *none*, *visual impact, ideas/message, structure/design, audience comments, technical skill* or any combination of these. Similar to the second point of evaluation, the option "none" was chosen in a plurality of cases except with respect to "other creative pieces, where it was chosen a majority of the time (51 times, or in 77.27% of cases) (see Table 7 in Appendix).

Discounting the choice of *none* for each of the following types, then, in video creations, the students surmised that others liked the *visual impact* most often, in 15, or 22.73% of cases. In music creations, students chose *ideas/message* most often, in 14, or 21.21% of the time. In photo

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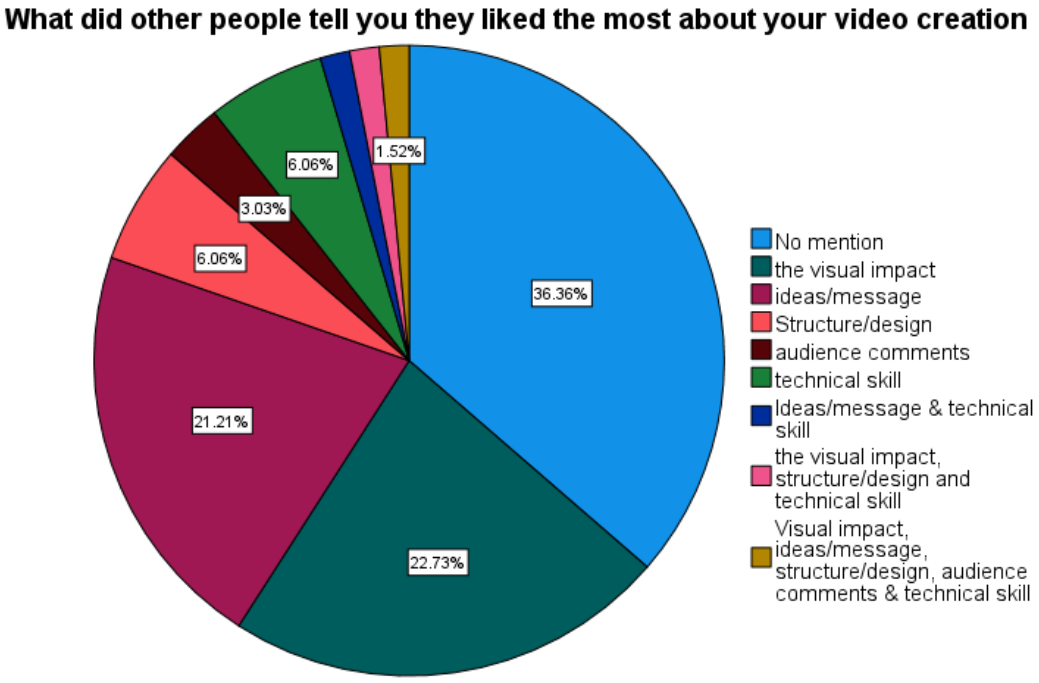
creations, the students chose *visual impact* most often, in 14, or 21.21% of the time, and in comics creations, *visual impact* was also chosen most often, in 12, or 18.18% of cases. In animé/manga, *ideas/message* was chosen most often, in 13, or 19.70% of the time, and in fan fiction, *ideas/message* was also chosen most often, in 14 cases, or 21.21% of the time. In digital stories, students chose *ideas/message* in 14 cases, or 21.21% of the time, and in other creative pieces, they chose *ideas/message* in 4, or 6.06% of the time (see Figure 5).

Figure 5

What Others Liked the Most about Adolescents' Creations



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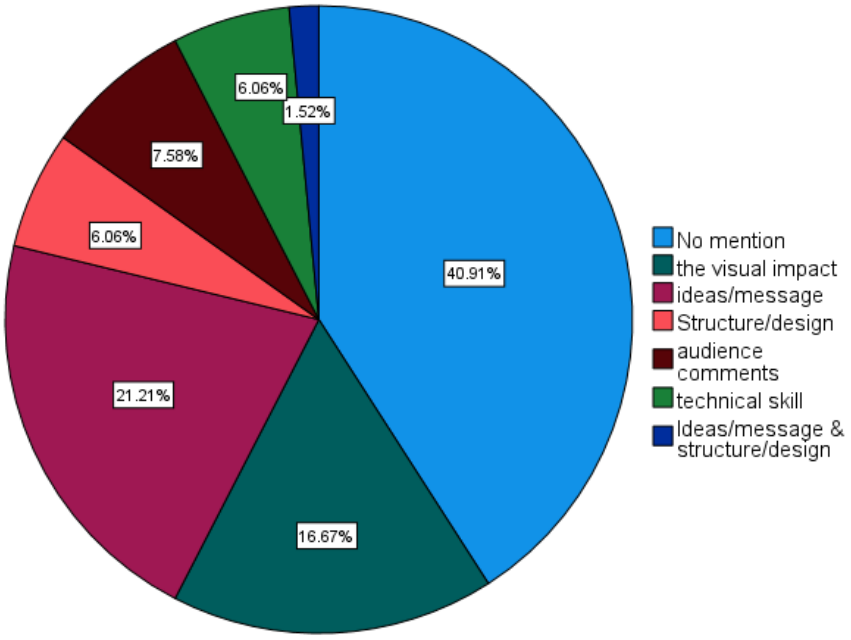
What did other people tell you they liked the most about your musical creation



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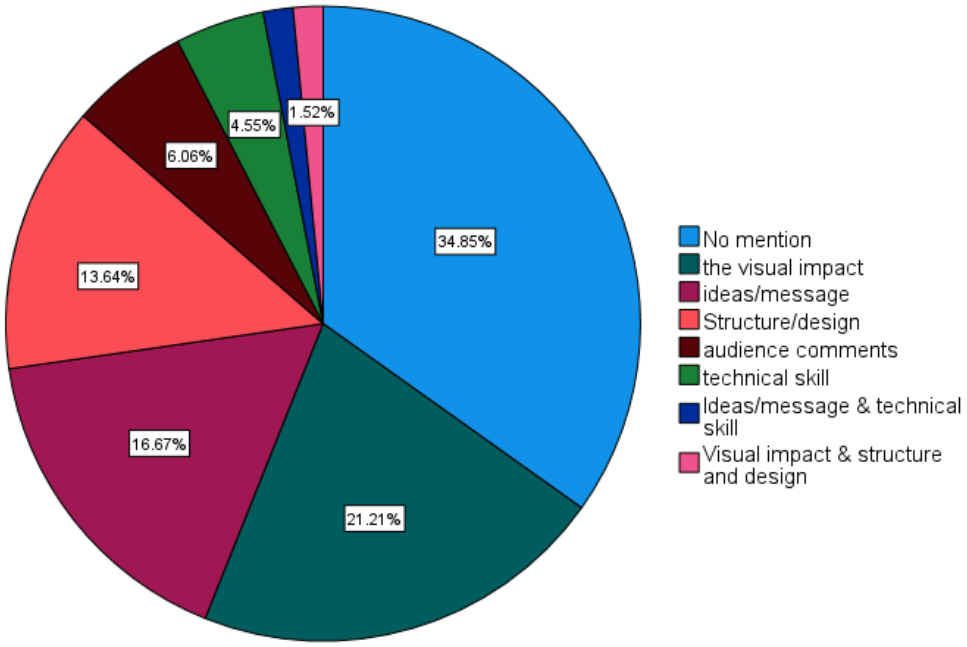

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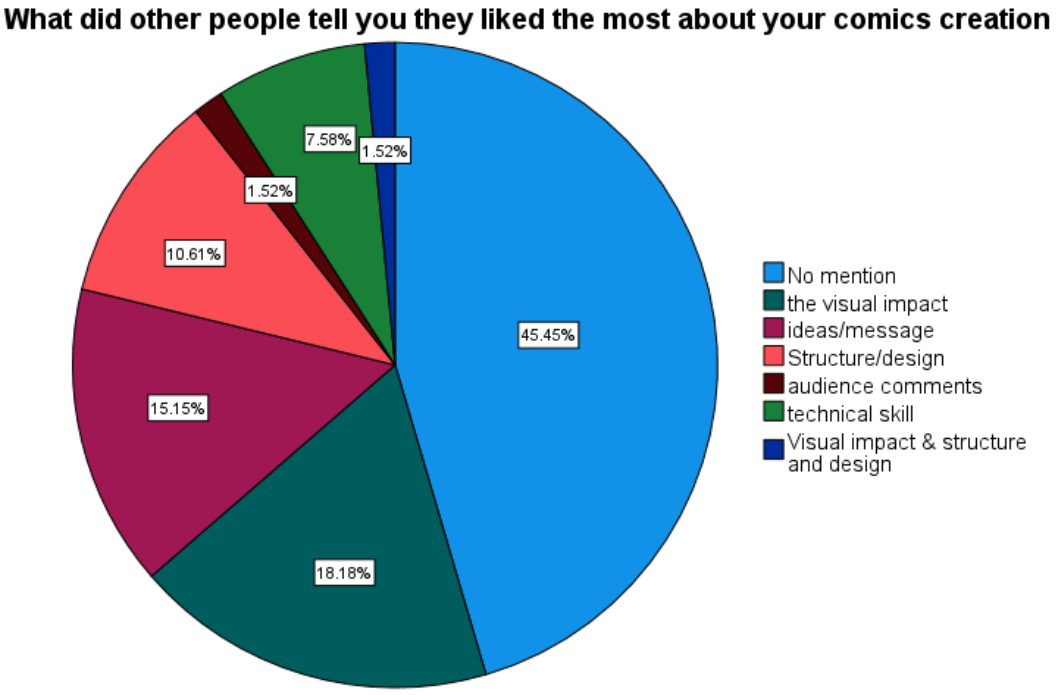

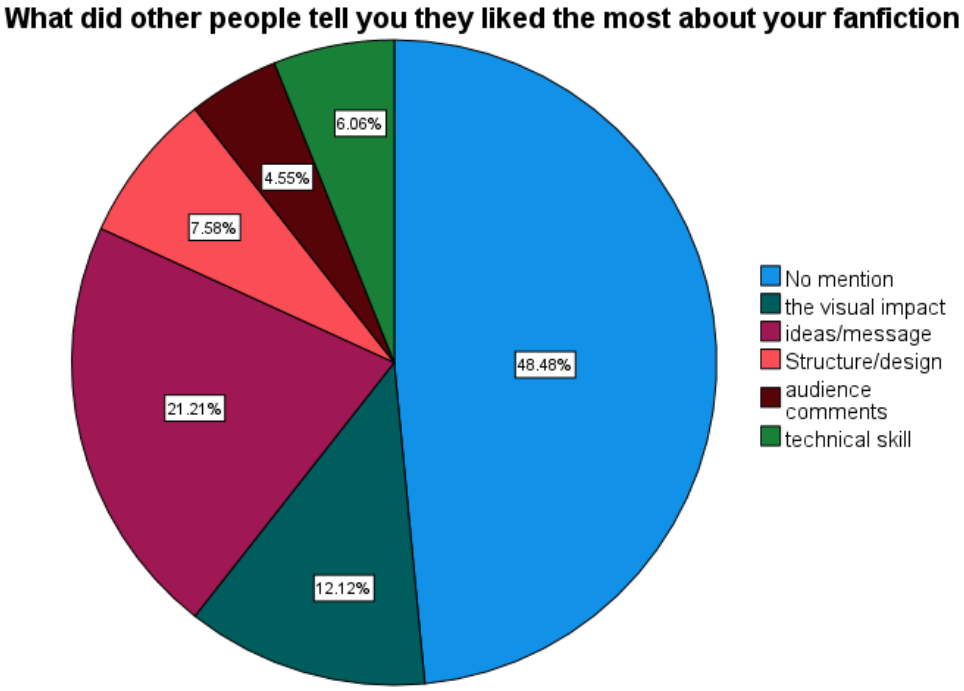

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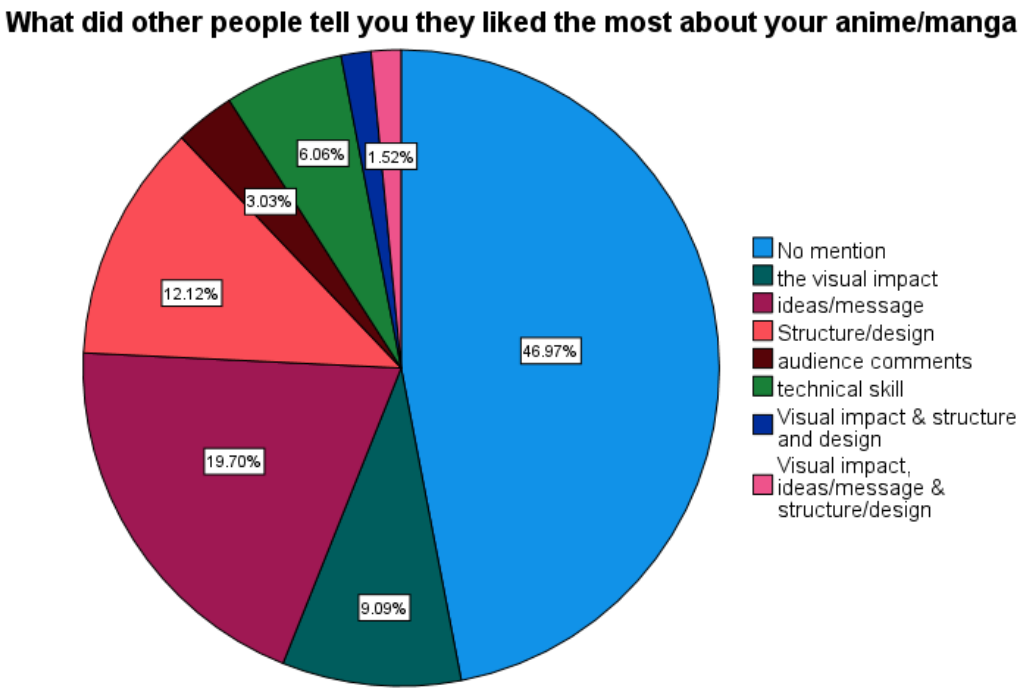

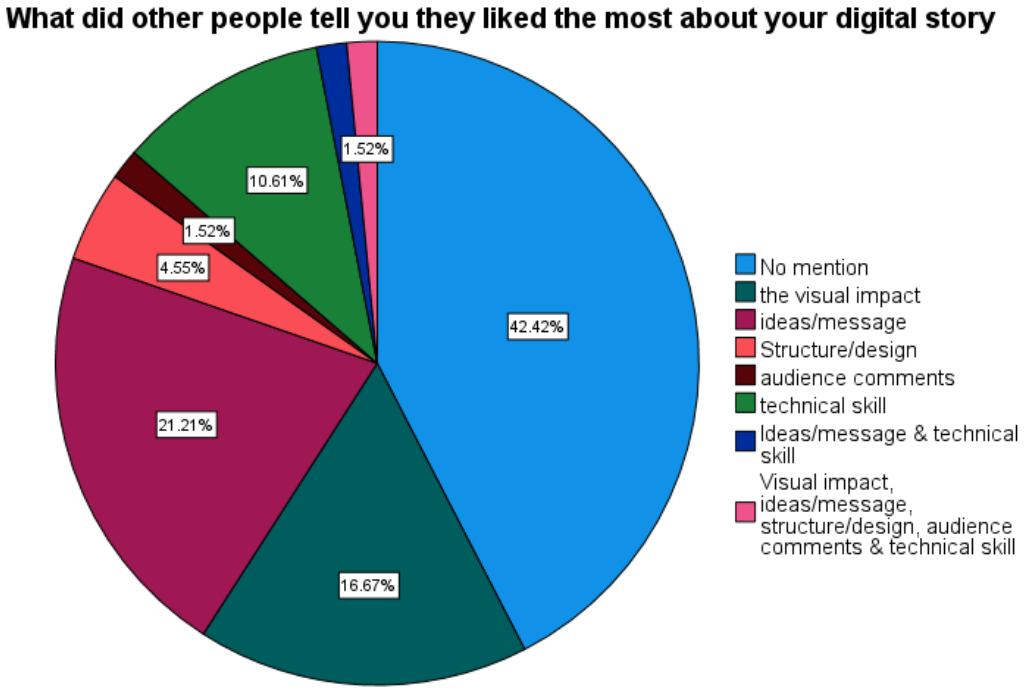

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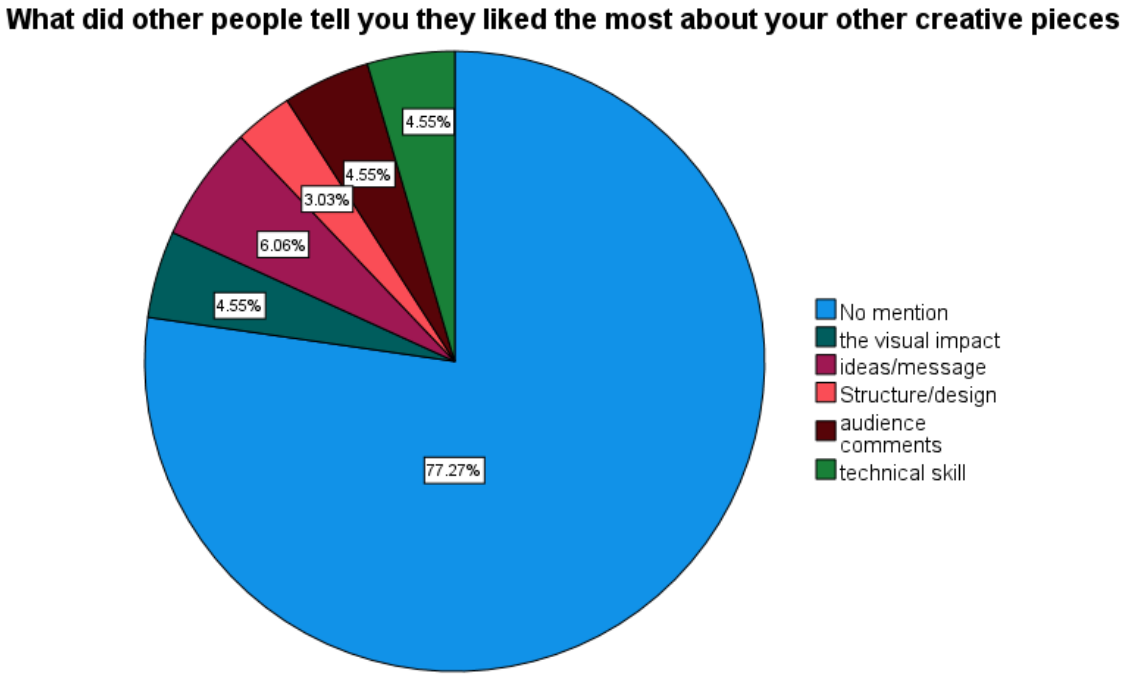

Discussion

The Forms of Multimodal Creations

Voss (2018), writing about the digital multimodal classroom, notes that "[w]here digital literacy learning opportunities in collaborative projects are concerned, unequal opportunities mirror what Henry Jenkins and other scholars in communication and sociology call the digital participation gap" (Voss, 2018, p. 59). We did find some evidence of what Voss (2018) described among our overwhelmingly Black young multimodal composition creators. As we discussed in our findings earlier, according to our survey, those who tended to create one kind of composition said they chose to create in other genres. We found that students who most

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frequently created videos said they tended to create photos, comics, music, and even animé and manga. Moreover, comics creators said they tended to create fan fiction and music. This suggests that these young adolescents work across modalities to make meaning. While this is an encouraging fact on its own, it also means that our research shows that the digitally adept tend to be adept in multiple areas, and to have competencies in several areas of literacy simultaneously. Using Martin and Lambert's (2015) above classification, these are "digital drivers" because of their heavy technology use and creating in "multiple modes and genres" (p. 217).

Also present in the data, however, were certain children who seemed to be left out of the digital multimodal conversation or "digital participation" (Voss, 2018). These are the students who would be closest to "digital passengers," who engage in "minimal digital [multimodal] text creation" (Martin & Lambert, 2015 p. 221). In our study these were the young adolescents who refrained altogether from creating (producing 0 times) complex digital multimodal compositions such as digital stories, animé/manga, fan fiction, and comics. This suggests that many students chose not to make a multimodal creation using a plethora of methods but stuck to the methods they knew. This is problematic because by not engaging in creating these compositions, these young adolescents miss out on an opportunity not only to develop or hone their drawing skills (by hand or digitally), artistic technique (e.g., shading, rendering) and technical skills (i.e., understanding tools and media involved) but also the ability to conceptualize complex plots, to think visually and critically, to communicate wit and humor, and to alphabetically write well, among other, subtler skills (Eisner, 2008). It is to these students that we must direct our attention, as we both assess and seek to most profitably aim the passion, skills and creativity of young

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people in the brave new world of increasingly multimodal composition and communication (Curwood, 2012; Kress, 2003; Morrison, 2010).

Another area that this study explored was how our cohort managed the creation of non-alphabetic texts and what relationship existed between these and traditional alphabetic writing. More than 80% of our young adolescent cohort took at least one photo, and more than 75% had created a video. Almost 30% had taken more than five videos, which is a generally more favorable picture than the one reported pre-pandemic in the national survey of middle school teachers where multimodal creation was infrequent (Graham et al., 2014), in comparison to the data gathered during the pandemic that showed a great deal of media creation among youth in US and abroad (Rideout & Robb, 2021; Martí-Gonzaléz et al., 2020). It is clear that, going forward, both the technological milieu and the thrust of their own expertise are going to make composition with digital affordances a venue for developing creativity skills in addition to more traditional sources of creativity such as painting, dance or diary keeping for young adolescents.

The Purpose, Audience, and Context for Multimodal Creations

In terms of the purpose, the young adolescents chose in majority "for fun" over other categories for the purpose for which they created their multimodal creations. This is understandable and also encouraging since having fun or engagement have been associated with cognitive effort (Miller, 2009), emotional engagement (McClelland & Cameron, 2011), agency (being self-reliant and proactive) in learning (Ivey & Johnston, 2013), and improved writing performance (Graham et al., 2017; Wright et al., 2019). What is disconcerting, however, is the fact the young adolescents did not associate "fun" with "learning" and with "school," because they rarely selected the combination of these values in their survey responses. This finding may

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not be surprising, as according to the national survey of writing in middle school (Ray et al., 2016), the most common forms of writing that teachers reported using in the classroom were writing short responses, note taking, and completing worksheets, at least once a week, while creating a multimodal text such as a PowerPoint occurred "only several times a year" (p. 1056). The same trend was observed in the 2014 national survey of middle school teachers' writing instruction (Graham et al., 2014). The recent data also noted the challenges that the pandemic wrought with reading and writing instruction for young learners (Skar et al, 2023; Rideout et al., 2022). Thus, both the results from this study and previous research indicate a strong need for multimodal composition and multimodal composing instruction (of which more below) in schools such as our research site (an urban title 1 school) on a more regular than an occasional basis.

While good writers know their audience well (Kellogg, 2008) and they understand how to engage it and learn from their perspectives and experiences (Magnifico, 2010), the young adolescents in this study exhibited a relatively poor conception of audience. This was evident where the majority of our young adolescents chose either "everyone else," "oneself" or "no one" in particular as the audience for their multimodal creations, which suggests a very abstract-sounding audience awareness (Litt & Hargittai, 2016) as well as self-centeredness (Blau, 1983). Young writers often struggle with the concept of audience (Barbeiro, 2010) in general, and whereas this study corroborates this trend, it also shows the need for re-examining this concept in "new media-infused learning environments" (Magnifico, 2010, p. 167) such as YouTube, Instagram/Facebook, Snapchat and similar social media platforms where our participants and the participants in previous research were reported to publish and distribute their multimodal

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creations (Anderson & Jiang, 2018; Lenhart, 2015; NORC, 2017). Learning to understand the intricacies of the online audience is a difficult task though as the audience that these young writers may imagine for their posts with multimodal creations may not necessarily be the actual audience (Litt & Hargittai, 2016; McGrail & McGrail, 2014).

Alternatively, the audience composition itself might be widely diverse, including for example family, the general public and peers, with each potentially having different expectations (Litt & Hargittai, 2016; Marwick & boyd, 2010). Young writers will need therefore much help with unpacking the rhetorical contexts within which their audiences exist (Morrison, 2010; Palmeri, 2012), as well as knowing how to address the needs of both general and targeted audiences. More research is definitely needed to better understand the construct of audience on social media platforms among young adolescent multimodal creators, which will provide the insight on which educators can build their future instruction.

Although YouTube, the most popular channel reported for adolescent content creators in previous research (Anderson & Jiang, 2018), was also a popular dissemination venue among the young adolescents in this study, they chose to post their multimodal creations onto both YouTube and Instagram (the second most popular choice), thus expanding the reach and profile for their work, especially for video, music, digital story, and fan fiction. This was not true of all participants, however, as one-third of composers in two genres, (fan fiction and animé/manga) opted not to publish their work at all and more than 50 % did not post “other” creations. The latter groups of young adolescent participants clearly underutilized online spaces available for their multimodal creations, which is in opposition to the trends reported in previous research where about 87% of teens ages, 12-17 use the internet to share their multimodal content with a

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wider audience (Lenhart & Madden, 2005) and where "almost all U.S. teens [97%] report using the internet daily" (Vogels et al., 2022, p.8). The lower self-evaluation ratings in this study for fan fiction (19.70 %), comics (24.24 %), and animé/manga (28.79%) suggest that their creators were not very pleased with, and hence perhaps not comfortable sharing these multimodal creations with others. Alternatively, firewall barriers might have prevented access to social media sites.

The Value Systems Assigned to the Multimodal Creations

The well-known gender distinction in affect towards writing (Fletcher, 2006; Fearrington, et al., 2014) was partially supported in our cohort, as the girls tended to "love" writing more and more as they progressed from 6th through 8th grade while the boys' positive affect for writing seemed to peak in the 7th grade, when they "kind of liked" it. While both girls and boys need a writing-friendly environment to advance their skills, helping boys develop confidence and interest in writing in early middle grades is important. Fletcher (2006) suggests attending to their topic interests, inviting the genres that boys favor (e.g., warfare, dynamic action, bathroom humor) and incorporating play and performance, among other suggestions. Based on the findings in this study, we would like to add to these recommendations video, music, and digital story writing since these multimodal genres were most popular with the young adolescents we surveyed. Additionally, educators should consider likely distinctions for genre and modalities for Black boys and girls, based on culture, learning styles and other background characteristics. For example, Tichavakunda and Tierney (2018) have noted that, not only are certain technologies, such as laptops and tablets less often found among young Black students in comparison to their white peers, but Black students use those technologies somewhat differently, pushing their

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smartphones to do tasks to compensate for perceived deficiencies. Lewis Ellison and Solomon (2018) have also reported race and gender differences in digital play and creativity for the young African American boys they studied. This topic has not been explored extensively and it requires further investigation.

Overall, the creations with which the majority of our young adolescents were "somewhat pleased" included, in descending order, photos, video, music, digital stories, and comics. The young adolescents were the least satisfied with animé/manga creations. These findings align with the levels of comfort that the young adolescents had with using the tools and applications for generating the latter genres. Specifically, in the majority, the comfort levels with video and audio editing applications were ranked 6 and 7, respectively, while the ratings for the comics and animé/manga technologies were below the top rankings. These findings suggest that either these young adolescents have high expectations for their creative work, especially for animé/manga, or that their technical and composing skills in these genres need improvement.

The young adolescents' evaluation of specific aspects of multimodal writing craft was most perplexing, because in the majority they indicated "none" from the evaluation characteristics provided (e.g., visual impact or ideas/message). This could mean that either they thought that certain creations were not strong enough (see the comments above about being only "somewhat pleased" with a number of genres) or that they might have not understood well the concepts the evaluation criteria addressed. A similar lack of response existed for the question of how they perceived what other people liked about their creations.

The trends in the self-evaluation of multimodal creations reported in here reflect a well-documented long-term struggle with evaluating multimodal composition in the field at large

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(Curwood, 2012; Kalantzis et al., 2003). For example, after reviewing the frameworks for evaluating multimodal composition in K-12 contexts, the first author of this article and a colleague (McGrail & Behizadeh, 2017) found that educators often used the frameworks and assessments for traditional writing (print-based texts), rather than assessments tailored to assess multimodal writing and design (e.g., visual impact or text structure in fan fiction). If we wish young creators to be able to critically and meaningfully evaluate their multimodal designs, they and their teachers need a better understanding of what such designs involve and how to assess the unique aspects and conventions of particular multimodal genres (e.g., digital story, musical or photographic composition, comics, animé/manga).

Conclusion

Insights gleaned from this exploration shed light on how young adolescent writers in one urban school context utilized the technologies and applications available to them for meaning making and the degree to which their creations were "distributed, interpreted, and remade through many representational and communicational resources, of which language is but one" (Jewitt, 2008, p. 246). While overall the findings indicate some degree of diversity of form, purpose, and audience in composing in the classroom and beyond among young adolescent writers who have limited technology resources, these findings also reveal gaps in this particular educational setting in certain modalities for some groups of young adolescents. They also call attention to the need to help these young creators with developing an audience awareness, especially of an online audience, and assessing specific aspects of their multimodal creations.

It is gratifying, of course, that we have mostly emerged from the isolation brought about by the pandemic. It had strong and measurable effects on the learning students were able to

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accomplish (Skar et al., 2023; Rideout et al., 2022), and doubtless, much more research will assess if and where they flourished during their 18-month privation. In the meantime, while we note that other research has shown that it did not expunge the flame of students' digital multimodal creations in their many formats and forms (Rideout & Robb, 2021; Martí-Gonzaléz et al., 2020), further research is needed to find if newer digital social media create entirely different audiences for adolescents to acknowledge, address and create for. We look forward to creating new research, modeled on what is reported here, that assesses anew how students creatively grapple with ever newer digital tools.

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APPENDIX

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Table 1 *Reported Number of Times Multimodal Creation Type Produced (n=66)*

Multimodal Creation Type	0 Times		1-2 Times		3-4 Times		5 or More Times		Total	Total
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	No.	Percent
Photos	12	18.2	13	19.7	11	16.7	30	45.5	***54***	***81.8%***
Video	16	24.2	23	34.8	8	12.1	19	28.8	***50***	***75.8%***
Music	19	28.8	17	25.8	15	22.7	15	22.7	***47***	***71.2%***
Digital Story	35	53.0	8	12.1	11	16.7	12	18.2	31	47%
Comics	38	57.6	16	24.2	6	9.1	6	9.1	28	42.4%
FanFiction	41	62.1	8	12.1	10	15.2	7	10.6	25	37.9%
Anime/Manga	43	65.2	12	18.2	7	10.6	4	6.1	23	34.8%
Other	63	95.5	0	0	1	1.5	2	3.0	3	5%

Note: The top three total multimodal types have been italicized and bolded.

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Table 2 *Stated Purposes for Multimodal Compositions(n=66)*

Multimodal Type	Frequency	Percent	(Cumu.) Percent	Multimodal Type	Frequency	Percent	(Cumu.) Percent
Video				**FanFiction**			
None	15	22.73	22.73	None	30	45.45	45.45
For school	5	7.58	30.30	For school	4	6.06	51.52
For fun	34	51.52	81.82	For fun	22	33.33	84.85
To learn	1	1.52	83.33	To learn	4	6.06	90.91
To be part of a group	6	9.09	92.42	To be part of a group	6	9.09	100.00
For fun & to learn	2	3.03	95.45	Total	100.0	100.0	
For school & for fun	2	3.03	98.48	**Anime/Manga**			
For school & to learn	1	1.52	100.00	None	29	43.94	43.94
Total	100.00	100.00		For school	4	6.06	50.00
Photo				For fun	22	33.33	83.33
None	16	24.24	24.24	To learn	5	7.58	90.91
For school	4	6.06	30.30	To be part of a group	6	9.09	100.00
For fun	36	54.55	84.85	Total	100.0	100.0	
To learn	3	4.55	89.39	**Digital Story**			
To be part of a group	5	7.58	96.97	None	28	42.42	42.42
For fun & to learn	1	1.52	98.48	For school	5	7.58	50.00

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For school & for fun	1	1.52	100.00	For fun	17	25.76	75.76
Total	100.0	100.0		To learn	6	9.09	84.85
Music				To be part of a group	7	10.61	95.45
None	20	30.30	30.30	For fun & to learn	1	1.52	96.97
For school	2	3.03	33.33	For school & for fun	1	1.52	98.48
For fun	31	46.97	80.30	For school and to learn	1	1.52	100.00
To learn	4	6.06	86.36	Total	100.0	100.0	
To be part of a group	7	10.61	96.97	**Other**			
for fun & to be part of a group	1	1.52	98.48	None	51	77.27	77.27
For fun & to learn	1	1.52	100.00	For school	1	1.52	78.79
Total	100.0	100.0		For fun	6	9.09	87.88
Comics				To learn	1	1.52	89.39
None	27	40.91	40.91	To be part of a group	7	10.61	100.00
For school	3	4.55	45.45	Total	100.0	100.0	
For fun	25	37.88	83.33				
To learn	4	6.06	89.39				
To be part of a group	7	10.61	100.00				
Total	100.0	100.0					

Note. While every category of composition featured the same suggested reasons (“for fun,” “for school,” etc.) from which the participants could choose, some of these reasons ended up not being selected at all, and hence the categories chosen by 0 students were omitted from this table.

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Table 3 *Stated Audiences for Multimodal Compositions*

Multimodal Type	Did not respond	Teachers	Online friends	Offline friends	Family	Myself only	Everyone else (the public)
Video							
Frequency	14	7	9	5	6	11	8
Percent	**21.2**	10.6	13.6	7.6	9.1	***16.7***	12.1
Cumu. Percent	21.2	31.8	45.5	53.0	62.1	78.8	90.9
Music							
Frequency	21	7	6	2	3	14	10
Percent	**31.8**	10.6	9.1	3.0	4.5	***21.2***	15.2
Cumu. Percent	31.8	42.4	51.5	54.5	59.1	80.3	95.5
Photos							
Frequency	17	3	6	8	6	13	9
Percent	**25.8**	4.5	9.1	12.1	9.1	***19.7***	13.6
Cumu. Percent	25.8	30.3	39.4	51.5	60.6	80.3	93.9
Comics							
Frequency	27	6	5	5	0	8	14
Percent	**40.9**	9.1	7.6	7.6	0	12.1	***21.2***
Cumu. Percent	40.9	50.0	57.6	65.2	0	77.3	98.5
Fanfiction							
Frequency	30	7	2	3	2	9	12

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Percent	**45.5**	10.6	3.0	4.5	3.0	13.6	***18.2***
Cumu.Percent	45.5	56.1	59.1	63.6	66.7	80.3	98.5
Anime/Manga							
Frequency	29	7	5	3	0	8	14
Percent	**43.9**	10.6	7.6	4.5	0	12.1	***21.2***
Cumu. Percent	43.9	54.5	62.1	66.7	0	78.8	100.0
Digital Story							
Frequency	25	11	2	3	3	9	12
Percent	**37.9**	16.7	3.0	4.5	4.5	13.6	***18.2***
Cumulative Percent	37.9	54.5	57.6	62.1	66.7	80.3	98.5
Other							
Frequency	52	2	0	2	1	2	7
Percent	**78.8**	3.0	0	3.0	1.5	3.0	***10.6***
Cumu. Percent	78.8	81.8	0	84.8	86.4	89.4	100.0

Note: We also exhaustively asked about every combination of the above intended audiences, but the number of respondents who responded with multiple audiences never rose above 2 individuals per multiple category, thus we report here the main audience categories, which reflected 90.5%-98.5% of responses. Highest percentages are bolded. Highest percentages that indicated a response are bolded and italicized.

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Table 4 *Stated Venues for Multimodal Compositions*

Venue	Did not post	Blog	Wiki	Website	Twitter	Facebook/ Myspace	Instagram	Pinterest	Snapchat	YouTube	Instagram & YouTube	Instagram, Snapchat & YouTube	Website, Instagram, Snapchat & YouTube	Facebook/ MySpace & Instagram
Video														
Frequency	10	5	0	3	0	5	17	0	0	5	15	0	0	0
Percent	15.2	7.6	0	4.5	0	7.6	***25.8***	0	0	7.6	22.7	0	0	0
Cumu. %	15.2	22.7	0	27.3	0	34.8	60.6	0	0	68.2	90.9	0	0	0
Music														
Frequency	18	2	1	2	1	1	11	0	0	4	21	0	0	0
Percent	27.3	3.0	1.5	3.0	1.5	1.5	16.7	0	0	6.1	***31.8***	0	0	0
Cumu. %	27.3	30.3	31.8	34.8	36.4	37.9	54.5	0	0	60.6	92.4	0	0	0
FanFiction														
Frequency	26	2	0	4	1	1	5	0	0	3	24	0	0	0
Percent	**39.4**	3.0	0	6.1	1.5	1.5	7.6	0	0	4.5	***36.4***	0	0	0
Cumu. %	39.4	42.4	0	48.5	50.0	51.5	59.1	0	0	63.6	100.0	0	0	0
Digital Story														
Frequency	23	1	1	4	1	1	5	0	0	3	26	0	0	0
Percent	34.8	1.5	1.5	6.1	1.5	1.5	7.6	0	0	4.5	***39.4***	0	0	0
Cumu. %	34.8	36.4	37.9	43.9	45.5	47.0	54.5	0	0	59.1	98.5	0	0	0
Other														
Frequency	44	1	1	1	0	1	0	0	0	2	16	0	0	0

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Percent	**66.7**	1.5	1.5	1.5	0	1.5	0	0	0	3.0	***24.2***	0	0	0
Cumu. %	66.7	68.2	69.7	71.2	0	72.7	0	0	0	75.8	100.0	0	0	0
Photo														
Frequency	10	2	0	2		4	22	1	3	1	12	1	1	1
Percent	15.2	3.0	0	3.0		6.1	***33.3***	1.5	4.5	1.5	18.2	1.5	1.5	1.5
Cumu. %	15.2	18.2	0	21.2		27.3	60.6	62.1	66.7	68.2	86.4	87.9	89.4	90.9
Comics														
Frequency	24	1	1	4		1	4	1	1	2	25	1	0	0
Percent	36.4	1.5	1.5	6.1		1.5	6.1	1.5	1.5	3.0	***37.9***	1.5	0	0
Cumu.%	36.4	37.9	39.4	45.5		47.0	53.0	54.5	56.1	59.1	97.0	98.5	0	0
Anime/Manga														
Frequency	26	1		1		1	4	3	0	3	26	0	0	0
Percent	**39.4**	1.5		1.5		1.5	6.1	4.5	0	4.5	***39.4***	0	0	0
Cumu. %	39.4	40.9		42.4		43.9	50.0	54.5	0	59.1	98.5	0	0	0

Note: We also exhaustively asked about every combination of the above intended digital hosts, but the number of respondents who responded with three or more hosts never rose above 2 individuals per multiple category, hence, to save space we report here only the main digital hosting sites, which collected from 90.9%-100% of responses.

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Table 5 *Stated Overall Self Evaluation of Multimodal Compositions*

Multimodal Type	Value	Frequency	Percent	Valid Percent
Video				
Very displeased	1	4	6.06	6.06
Somewhat displeased	2	4	6.06	6.06
Neither pleased nor displeased	3	4	6.06	6.06
Somewhat pleased	4	31	46.97	46.97
Very pleased	5	23	34.85	34.85
Total	Mode=4	66	100.0	Mean = 3.98
Photo				
Very displeased	1	3	4.55	4.55
Somewhat displeased	2	5	7.58	7.58
Neither pleased nor displeased	3	5	7.58	7.58
Somewhat pleased	4	28	42.42	42.42
Very pleased	5	25	37.88	37.88
Total	Mode=4	66	100.0	Mean=4.02
Music				
Very displeased	1	4	6.06	6.06
Somewhat displeased	2	3	4.55	4.55
Neither pleased nor displeased	3	6	9.09	9.09
Somewhat pleased	4	34	51.52	51.52
Very pleased	5	19	28.79	28.79
Total	Mode=4	66	100.0	Mean=3.92
Comics				
Very displeased	1	5	7.58	7.58

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Somewhat displeased	2	5	7.58	7.58
Neither pleased nor displeased	3	4	6.06	6.06
Somewhat pleased	4	36	54.55	54.55
Very pleased	5	16	24.24	24.24
Total	Mode=4	66	100.0	Mean=3.80
FanFiction				
Very displeased	1	7	10.61	10.61
Somewhat displeased	2	6	9.09	9.09
Neither pleased nor displeased	3	34	51.52	51.52
Somewhat pleased	4	6	9.09	9.09
Very pleased	5	13	19.70	19.70
Total	Mode=3	66	100.0	Mean=3.18
Anime/Manga				
Very displeased	1	6	9.09	9.09
Somewhat displeased	2	3	4.55	4.55
Neither pleased nor displeased	3	6	9.09	9.09
Somewhat pleased	4	36	54.55	54.55
Very pleased	5	15	22.73	22.73
Total	Mode=4	66	100.0	Mean=3.77
Digital Story				
Very displeased	1	5	7.58	7.58
Somewhat displeased	2	2	3.03	3.03
Neither pleased nor displeased	3	4	6.06	6.06
Somewhat pleased	4	37	56.06	56.06

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Very pleased	5	18	27.27	27.27
Total	Mode=4	100.0	100.0	Mean=3.92

Note: No responses were provided for any other type of creation

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Table 6 *Stated Self Evaluation of Specific Aspects of Multimodal Composition*

Multimodal Type	Value	Frequency	Valid Percent	Cumu. Percent
Video				
None	0	**21**	31.82	31.82
Visual impact	1	11	16.67	48.48
Ideas/message	2	***13***	19.70	68.18
Structure/design	3	11	16.67	84.85
Audience comments	4	1	1.52	86.36
Technical skill	5	6	9.09	95.45
Visual impact, Structure/design, Audience comments, & Technical skill	7	1	1.52	96.97
Visual impact, Ideas/message, Structure/design, Audience comments & Technical skill	9	2	3.03	100.00
Total		66	100.0	
Photo				
None	0	**22**	33.33	33.33
Visual impact	1	***12***	18.18	51.52
Ideas/message	2	11	16.67	68.18

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Structure/design	3	8	12.12	80.30
Audience comments	4	3	4.55	84.85
Technical skill	5	5	7.58	92.42
All of the above	6	2	3.03	95.45
Visual impact, Structure/design, Audience comments, & Technical skill	7	1	1.52	96.97
Ideas/message & Structure/design	8	1	1.52	98.48
Visual impact, Structure/design & Audience comments	11	1	1.52	100.00
Total		66	100.0	
Music				
None	0	**26**	39.39	39.39
Visual impact	1	11	16.67	56.06
Ideas/message	2	***15***	22.73	78.79
Structure/design	3	6	9.09	87.88
Technical skill	5	6	9.09	96.97
Visual impact, Structure/design, Audience	7	1	1.52	98.48

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comments, & Technical skill				
Structure/design & audience comments	10	1	1.52	100.00
Total		66	100.0	
Comics				
None	0	**29**	43.94	43.94
Visual impact	1	8	12.12	56.06
Ideas/message	2	8	12.12	68.18
Structure/design	3	***10***	15.15	83.33
Audience comments	4	5	7.58	90.91
Technical skill	5	5	7.58	98.48
Visual impact, Structure/design & Audience comments	11	1	1.52	100.00
Total		66	100.0	
FanFiction				
None	0	**31**	46.97	46.97
Visual impact	1	6	9.09	56.06
Ideas/message	2	***10***	15.15	71.21
Structure/design	3	7	10.61	81.82
Audience comments	4	4	6.06	87.88

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Technical skill	5	7	10.61	98.48
Ideas/message & audience comments	12	1	1.52	100.00
Total		66	100.0	

Anime/Manga				
None	0	**34**	51.52	51.52
Visual impact	1	6	9.09	60.61
Ideas/message	2	***9***	13.64	74.24
Structure/design	3	7	10.61	84.85
Audience comments	4	4	6.06	90.91
Technical skill	5	5	7.58	98.48
Visual impact, structure/design & audience comments	11	1	1.52	100.00
Total		66	100.0	

Digital Story				
None	0	**29**	43.94	43.94
Visual impact	1	***9***	13.64	57.58
Ideas/message	2	8	12.12	69.70

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Structure/design	3	***9***	13.64	83.33
Audience comments	4	2	3.03	86.36
Technical skill	5	7	10.61	96.97
Visual impact, Ideas/message, Structure/design, Audience comments & Technical skill	9	1	1.52	98.48
Ideas/message, audience comments & technical skill	13	1	1.52	100.00
Total		66	100.0	
Other				
None	0	**49**	74.24	74.24
Visual impact	1	4	6.06	80.30
Ideas/message	2	2	3.03	83.33
Structure/design	3	***6***	9.09	92.42
Technical skill	5	5	7.58	100.00
Total		66	100.0	

Note. This table represents which categories of aspects (“visual impact,” “ideas/message,” etc.) and combination of aspects represent 100% of the choices made by the participants. However, if certain combinations of aspects offered for selection were chosen by no (0) participants, they were omitted from the table.

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Table 7 *Stated Self Evaluation of Specific Aspects of Multimodal Compositions by Others*

Multimodal Type	Value	Frequency	Valid Percent	Cumu. Percent
Video				
None	0	24	36.36	36.36
Visual impact	1	15	22.73	59.09
Ideas/message	2	14	21.21	80.30
Structure/design	3	4	6.06	86.36
Audience comments	4	2	3.03	89.39
Technical skill	5	4	6.06	95.45
Ideas/message & technical skill	6	1	1.52	96.97
Visual impact, structure/design and technical skill	7	1	1.52	98.48
Visual impact, ideas/message, structure/design, audience comments & technical skill	11	1	1.52	100.00
Total		66	100.0	
Photo				

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None	0	23	34.85	34.85
Visual impact	1	14	21.21	56.06
Ideas/message	2	11	16.67	72.73
Structure/design	3	9	13.64	86.36
Audience comments	4	4	6.06	92.42
Technical skill	5	3	4.55	96.97
Ideas/message & technical skill	6	1	1.52	98.48
Visual impact & structure and design	9	1	1.52	100.00
Total		66	100.0	
Music				
None	0	27	40.91	40.91
Visual impact	1	11	16.67	57.58
Ideas/message	2	14	21.21	78.79
Structure/design	3	4	6.06	84.85
Audience comments	4	5	7.58	92.42
Technical skill	5	4	6.06	98.48
Ideas/message & technical skill	8	1	1.52	100.00

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Visual impact, structure/design and technical skill		66	100.0	
Visual impact, ideas/message, structure/design, audience comments & technical skill				
Total		66	100.0	
Comics				
None	0	30	45.45	45.45
Visual impact	1	12	18.18	63.64
Ideas/message	2	10	15.15	78.79
Structure/design	3	7	10.61	89.39
Audience comments	4	1	1.52	90.91
Technical skill	5	5	7.58	98.48
Visual impact & structure/design	9	1	1.52	100.00
Total	66	100.0		
FanFiction				
None	0	32	48.48	48.48
Visual impact	1	8	12.12	60.61

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Ideas/message	2	14	21.21	81.82
Structure/design	3	5	7.58	89.39
Audience comments	4	3	4.55	93.94
Technical skill	5	4	6.06	100.00
Total	66	66	100.0	
Anime/Manga				
None	0	31	46.97	46.97
Visual impact	1	6	9.09	56.06
Ideas/message	2	13	19.70	75.76
Structure/design	3	8	12.12	87.88
Audience comments	4	2	3.03	90.91
Technical skill	5	4	6.06	96.97
Visual impact, & structure design	9	1	1.52	98.48
Visual impact, ideas/message, & structure/design	10	1	1.52	100.00
Total		66	100.0	
Digital Story				
None	0	28	42.42	42.42

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Visual impact	1	11	16.67	59.09
Ideas/message	2	14	21.21	80.30
Structure/design	3	3	4.55	84.85
Audience comments	4	1	1.52	86.36
Technical skill	5	7	10.61	96.97
Ideas/message & technical skill	6	1	1.52	98.48
Visual impact, ideas/message, structure/design, audience comments & technical skill	11	1	1.52	100.00
Total		66	100.0	
Other				
None	0	51	77.27	77.27
the visual impact	1	3	4.55	81.82
ideas/message	2	4	6.06	87.88
Structure/design	3	2	3.03	90.91
audience comments	4	3	4.55	95.45
technical skill	5	3	4.55	100.00
Total		66	100.00	

Note. This table represents which categories of aspects (“visual impact,” “ideas/message,” etc.) and combination of aspects represent 100% of the choices made by the participants. However, if certain combinations of aspects offered for selection were chosen by no (0) participants, they were omitted from the table.