

An Exploration of Black Students Interacting with Computing College and Career Readiness Vlog Commentary Social Media Influencers

Robert T. Cummings, Earl W. Huff, Naja A. Mack, Kevin Womack, Amber Reid, Brandon Ghoram, Kinnis, Gosha, and Juan E. Gilbert

Abstract—Effective advisement can help to address the disproportionately lower self-efficacy, identity, and sense of belonging experienced by Black students in computing degree programs. Black social media influencers who produce video log (vlog) commentary content on the YouTube platform were investigated to determine the influence they have on improving computing identity for Black students. This exploratory study consists of three studies: (1) a synthesis of vlog commentary college and career advisement videos, coding for the quality of advisement, usability, and user experience; (2) an advisor effectiveness and user experience survey using a selected Black social media influencer who provides computing college and career advisement; and (3) a user experience and interaction preference survey using a selected Black social media influencer. Findings suggest YouTube influencers could be effective, particularly for beginners in the computing field. Future studies intend to further explore Black computing advisement through social media over a long term and at varying levels of interaction.

Index Terms—Computer science education, Distance learning, Social Issues Employment, Usability



1 INTRODUCTION

As the demand for computing careers increases, it is imperative to address the underrepresentation of Black Americans in computing college degree programs and computing careers [1]. Two major contributors to this deficit are: 1) low sense of belonging in computing due to the lack of Black American representation in computing careers and higher education; and 2) inaccurate self-efficacy in computing due to the lack of technical performance and high expectations of the field [2]. Active advising from a

mentor in the computing field is regarded as an effective method for increasing sense of belonging and self-efficacy in a mentee [3]. An advising relationship exist between an individual with useful experience and wisdom who provides support and opportunities to a more novice member in their respective field to help develop the more novice member professionally and socially [3]. Advising relationships vary between individuals. Generally, advising relationships strengthen with effective accessibility, approachability, performance, growth, goal achievement, acknowledgment, supportiveness, critique, and clear comprehensive communication [3].

Literature suggests mentoring and advisement relationships involving ethnic minority students are more effective when advisors value their mentees' culture and are attentive to ethnic identity [2]. Ericson, Parker, & Engelman [4] also mention that mentors who more closely identify with their mentee's age, gender, social interests, and professional experience, provide advisement that is more effective for the mentee. These mentors are often described as "near peers". This representation helps to support Black American sense of belonging in their respective fields [2].

Black Americans in computing face distinct circumstances in their pursuit of computing careers. As stated, there is a lack of Black Americans in computing higher education [1]. It is also common that Black students are not exposed to technology and computing professionals in their households and upbringing. Few students receive

- R.T. Cummings is with the Department of Computer Science, Morehouse College, Atlanta, GA 30314. E-mail: robert.cummings@morehouse.edu.
- E.H. Huff is with the School of Computing, Clemson University, Clemson, SC 29634. E-mail: earlh@clemson.edu.
- N.A. Mack is with the Department of Computer & Information Science & Engineering, University of Florida, Gainesville FL 32611. E-mail: najamac@ufl.edu.
- K. Womack is with the Department of Computer Science, Morehouse College, Atlanta, GA 30314. E-mail: kevin.womack@morehouse.edu.
- A. Reid is with the Department of Humanities, Clark Atlanta University, Atlanta, GA, 30314. E-mail: amber.reid@students.cau.edu.
- B. Ghoram is with the Department of Computer Science, Morehouse College, Atlanta, GA 30314. E-mail: brandon.ghoram@morehouse.edu.
- K. Gosha is with the Department of Computer Science, Morehouse College, Atlanta, GA 30314. E-mail: kinnis.gosha@morehouse.edu.
- J.E. Gilbert is with the Department of Computer & Information Science & Engineering, University of Florida, Gainesville FL 32611. E-mail: juan@ufl.edu.

computing courses or counseling in computing careers in high school [2]. In a study assessing the barriers to minorities in computing, Black students selected their major due to influence from family, teachers, and online information [5]. The majority did not consider a career in computing due to inaccurate self-efficacy in computer skills [5]. The study's sample of underrepresented minority computing undergraduate students did not experience computer programming before college and considered switching from their majors because they perceived their programming skills as not good enough. Students reported that they didn't enjoy their courses and were not satisfied with their instructors.

Developing new and resourcing existing social media influencers is a novel approach to improving computing education advisement. YouTube influencers are the account owners and hosts that upload edited videos as a primary communication. YouTube has additional interactive features to resemble elements of an advisement feedback loop such as live streaming, comment interaction (replying, liking, and 'favoriting' which pins the selected comment to the top of comment feed), and back-end analytics (data on audience shares, likes/dislikes, comment counts, etc.) [6]. In addition, in November 2017, influencers with accounts over 10,000 subscribers gained access to the Community Tab containing such features as polls and status posts while allowing users to manage their desired level of visibility. Influencer videos come in a variety of formats; one being video log (vlog) commentary videos. A vlog commentary video is a video where a host has the camera facing them as they perform an unscripted or semi-scripted experience. Popular Black vlog commentary channels include Swoozie, GloZell Green, and Todrick Hall. In addition to YouTube, influencers span multiple social media platforms. Each platform offers different features such as Instagram and Snapchat video stories and Facebook and LinkedIn statuses.

Black Americans create online content more frequently than their white counterparts [7]. Black influencers produce content as a means of cultural expression, self-expression, connecting with niche community members [7]. Very few vlog commentary influencers have used their outlets to advise Black Americans in academia or industry [8]. Additionally, there has not been much of any validation of YouTube influencers as advisors or mentors.

2 GENERAL METHOD

An exploratory mixed method user experience study was conducted to assess the effectiveness of vlog commentary influencers in computing college and career advisement. The target population was Black Americans who are currently pursuing a degree or career in computing. It is hypothesized that influencers can effectively serve as near peer models to advise underrepresented minorities of college and career readiness in computing. The study consisted of three parts: (1) YouTube influencer thematic synthesis; (2) user experience study; and (3) social media interaction preferences study. The YouTube influencer thematic synthesis was used to determine similar factors of vlog-

commentary advising videos on the YouTube platform. The synthesis also helped determine a representative, individual YouTube influencer to use for the subsequent user experience study. The user experience study was conducted to observe Black computing students' impression of a vlog-commentary YouTube influencer advisement on a computing topic. The social media interaction preference study allowed for more details on how students interact with social media, their comfort of using social media for advisement, and offered insight on the value of such vlog-commentary computing advisement videos for both Black computing students and non-computing students.

3 YOUTUBE INFLUENCER THEMATIC SYNTHESIS

3.1 Method

Selection Criteria: The computing advisement synthesis was performed by the last two authors and a group of eight undergraduate research assistants. The YouTube platform was used to search for STEM and computing college and career advisement vlog commentary influencers. Search terms were determined by the research team (see Table 1 for a list of search terms). A group of eight undergraduate research assistants identified videos to be included into the synthesis. Duplicate videos were removed. Additional videos were excluded after the eight undergraduate research assistants independently screened the videos applying the inclusion criteria determined by the first three authors: (1) video was vlog commentary format; (2) video dealt with the graduate school or industry careers in STEM; (3) video was originally created from the influencer on the influencer's channel (no repost, review, or reaction to another's); and (4) host was an ethnic minority or a woman. Additional exclusion criteria were applied to (1) videos that contained vlog commentary format yet featured another format through much of the video; and (2) influencers who were overtly negative or inaccurate in their depiction of STEM, college, and/or industry. A total of 31 videos were included.

Validated quality appraisal questions were not included because unlike traditional syntheses where qualitative or quantitative research studies are observed, independently published videos were observed, thus quality appraisal questions were not relevant. However, quality appraisal topics such as the clarity and the credibility [9] of the content discussed on the videos were included in construct development. The Quality Appraisal Form questions were not scored as suggested by Atkins et al [9]. Instead, these questions were integrated into codes that were applied during theme development.

Construct Development and Analysis: To determine constructs of YouTube STEM advisor influencer behaviors and attributes, a thematic coding method as used [10]. A code manual was developed for the 31 selected videos. Codes were determined by leveraging existing validated scales for mentoring, user experience, and usability: (1) the Mentoring Effectiveness Scale (MES) [3]; (2) general user experience focus areas determined by the Interaction Design Foundation [11]; and (3) the short-form System Usability Scale (SUS) [12]. Additional codes were determined

TABLE 1
QUALITATIVE THEMATIC SYNTHESIS

Search terms	Graduate school, computer science, computing, coding, programmer, software engineer, technology, minority, Black, college experience, work experience, tips for success, careers in computer science, advice
Descriptive Constructs	
<i>Construct Name</i>	<i>Construct Definition</i>
Casual with professional quality	Influencer is visible with clean, quality videos, portrayed in a casual manner from attire, to environment, and speech.
Constructive & useful critiques	
Reflects journey	Influencer reflects on their journey, providing self-critique
Describes a journey	Influencer describes a scenario journey providing critique on its possibilities without personal experience
Question and answers	
Inclusive response	Influencer provides broad and inclusive answers and examples
Direct response	Influencer provides direct answers to specific and requested questions and lists resources
Pre-Recorded Interaction	Influencer mentions and questions the audience through their video
Desired Credibility	
Credibility through engagement	Influencer responds to comments expressing to individual users their expertise
Credibility through observation	Influencer has credible analytics including likes, minimum dislikes, and high view counts
Audience Demographic	Influencer's advisement services are valuable to many, especially those who are interested in and new to computing
Ease of Use	
Learning Curve	Influencer's advisement services have a very low learning curve, making their content simple to understand and acting more viable on a platform that is simple to use
Reuse	Influencer's advisement services have good replay value on a platform with easy replay features
Accessible	
Accessible platform	Influencer's advisement services are available on a YouTube which is a highly accessible platform
Functional advisement	Influencer provides advisement services consistently, frequently, and recently

The thematic synthesis used combined saturated themes from a qualitative content analysis into 13 constructs.

using supporting literature on ethnic identity and cultural relevance. Themes were determined inductively as the eight undergraduate research assistants independently observed the videos. The first three authors checked the themes developed from the research assistants for reliability [10].

3.2 Results

Descriptive themes: A total of 18 saturated themes from advisement effectiveness, 4 user experience saturated themes, and 7 usability saturated themes were condensed into 13 themes (see Table 1). Casual settings and interactions, critique on personal journeys, communication style, credibility, audience demographics, and usability were all established themes reoccurring in the data. Cultural relevance was included in four themes: hosts were minorities, hosts used cultural cues popularized in minority groups for relatability, hosts spoke on past experiences that challenged their ethnicity, and hosts mentioned stereotypes and/or microaggressions typically experienced by minorities.

Analytical themes and constructs: Recommendations to future computing advisor YouTube influencers were determined after analyzing the descriptive themes as well as after synthesizing author interpretations and a review of literature. The analytical themes were broken into three categories: recommendations to be applied before advising, recommendations to be applied while advising, recommendations to be continually applied across a duration

of advisement. The identified themes from the videos were determined by the authors' interpretations and were reviewed to determine if they aligned with existing, relevant literature (see Table 2).

3.3 Discussion

Vlog commentary influencers are most effective when they have experience in the field, are displayed with a quality camera, mention their audience directly, have a high number of likes and views, have a low number of dislikes, and are on an easily-accessible platform such as YouTube. Additionally, findings also suggest that there is significance in the host making a habit of sharing and critiquing their own personal experiences, uploading recently, and consistently giving examples and listing resources. Furthermore, making the video in a such a way that it requires a low learning curve and is primarily useful to individuals who are interested in or new to the field proved to be effective as well. Videos had a range of intuitiveness, as many hosts did not follow a logical order and included backtracking and persistent rambling.

Limitations: Qualitative synthesis approaches have been criticized and supported historically, particularly when using multiple theoretical traditions, due to the lack of consensus [10]. The SUS consists of ten questions that were condensed into six categories during the initial coding to reduce repetitive ideas: reusability, clearness/simplicity, and flow, user confidence, the learning curve required to use, and the simplicity of advice matching the

simplicity of the video's structure (or the video's structure being as simple as the advice they provide). There was no specific inter-rater reliability model, though there were checks from the first three authors to make sure themes were detailed and accurate to the codes. These authors worked on a checking system of the efficiency of the work performed by the undergraduates as the undergraduate worked a summer research experience.

4 USER EXPERIENCE STUDY

4.1 Method

Participants: A total of 20 participants were recruited for the user experience portion of the study. Recruitment was performed by word-of-mouth at a minority serving computing conference. The participants' ages ranged from 22-54 and were PhD students and candidates in computing. All participants were Black/African American.

Selected Influencer: For the user experience portion of the study, a single video was selected to represent a minority influencer advisor of computing college and career readiness. The influencer's YouTube channel is called Jarvis Johnson. The host of the video is a Black American who studied computer science at the Georgia Institute of Technology and has industry experience in software engineering. The selected video was titled *How to Get Into Software Engineering* and was released August 11, 2017. His channel also lists other videos that offer advice for people interested in becoming more involved with computing. At the time of the study, the channel had 91,345 subscribers and the selected video had 29,150 views, 2,200 likes, 11 dislikes, and 191 comments.

Procedure: *How to Get Into Software Engineering* by influencer channel Jarvis Johnson was selected as it was from the only influencer channel that provided multiple videos on the computing support and identity development. Attributes of the Jarvis Johnson were supported by the analytical themes determined in the synthesis. In a break-out session room at the conference, the participants, as a collective, were introduced to the selected influencer's channel by a facilitator on the research team. The facilitator displayed the selected video before the group. After the video, the participants then completed an online survey on their own devices. The online survey consisted of four sections: (1) demographic information including age, academic class, whether they watch vlogs or video commentaries, and the likelihood they would watch a minority-hosted vlog commentary video on college and career readiness in computing, (2) an 11-item 6-measure Likert scale adapted MES, (3) the 10-item 5-measure Likert scale short-form SUS, and (4) an open-ended response user experience questionnaire. The MES item of accessibility and the mentorship profile section were omitted from the survey measure. Scores for each survey were calculated and median scores are provided. Open-ended user experience responses were analyzed using a direct qualitative content analysis. Themes that were frequent were determined to be saturated.

TABLE 2
ANALYTICAL CONSTRUCTS

Construct Name	Recommendation to advising influencer
Before advising	Create a list of common themes associated with your topic of interest
	Create a list of your audience's questions
	Simplify your message as best as possible.
While advising	Use the highest quality camera you can access
	Be casual in your attire, speech, and location
	Be personal and authentic pulling from your own journey and your honest interpretation of scenario journeys
	Speak to your audience directly
Ongoing advisement	Respond to your audience's questions in a timely manner
	Use your interaction tools to further communicate and provide advice to your audience
	Pay attention and adjust based on your analytics and audience reaction to your content

Descriptive constructs and literature were analyzed to provide recommendations for computing advisement YouTube influencers.

4.2 Results

Demographic Questions: Participants were asked if, prior to participating in the study, they regularly watch vlogs or commentary videos on YouTube, DailyMotion, Vimeo, or other video hosting platforms. Seventeen participants watched these types of videos regularly. Seventeen participants were likely to watch a minority hosted vlog commentary that gives advice on college and career readiness in the computer science field.

Influencer effectiveness as an advisor: Out of a maximum advisor effectiveness score of 55, the median score for the influencer was 46 (approximately 84%). The characteristics varied in median scores; all median scores exceeded 3.

Influencer usability. Out of a maximum usability score of 100, usability scores ranged from 62.5 to 100, with a usability score of 86.25. There was no significant correlation between video usability and influencer effectiveness as an advisor.

User experience: Approximately the same amount of participants reactions changed for the better versus did not change, with most enjoying the influencer's advisement. Participants also recommended the particular video for high school students, computer science novices, minorities, and a range of audiences. Participants emphasized that the influencer encouraged them to explore their resources, find their comfort zone, and that that there is no one way to enter the field. Participants also believed the influencer to be credible because of his employment at a software company in San Francisco, previous matriculation at Georgia Tech, expertise and experience with various technologies and programming languages such as: Python, Java, JavaScript, etc. Participants also described his personality as very authentic and personable.

Participants noted that the medium the influencer used was very accessible "*many people watch social media*

videos these days" and that there would not be much of any challenges accessing such advisement. One participant mentioned that *"when I'm feeling stuck or need motivation I would watch it"*.

Many participants reactions changed from their initial expectations. Participants mentioned their hesitations to the advice given the medium and the strong usage of humor. One participant commented, *"I was hesitant at first for unrealistic advice, but he kept it real and honest"*. Another stated, *"I initially didn't know what to expect but I liked it"*.

On the other hand, many participants did not change from their initial reactions. Regardless, there were generally positive comments towards the advisement. Participants reported that the video was inspiring as evidenced by comments such as: *"At first I thought it was immature then he won me over and I would like to learn more about what he does"*.

4.3 Discussion

Many participants watch vlog commentary videos and are likely to watch advisement videos as suggested [7], the survey suggests that social media (namely YouTube) is a viable platform for broadening participation in computing through supplemental advisement for college and career readiness to Black Americans.

As individual advisement characteristics varied, the most favorable characteristics (median of 5, the maximum score) were being supportive and encouraging, approachable, and helpful in suggesting appropriate resources. This says something about how YouTube influencers are also called personalities. This should be effective particularly in environments where accessing in-person advisement is not the most encouraging or approachable. Regarding cultural relevance, the host's identity as an African American in the computing field and his acknowledgement of the lack of peers in the field may be related to the perceived approachability and sense of belonging/encouragement identified by participants [3]. Likewise, his youth and use of humor [4] may have also had influence. Comparable to in-person/traditional advisors or mentors, influencers are not always available to advise the advisee or mentee directly, though some level of advisement is always accessible.

Timeliness and clarity of the message suffered with a short runtime of 3 minutes and 42 seconds while covering multiple topics. For short videos, social media interactive features can help supplement the advisement. For the selected video, the inherent humor could have also disrupted the clarity of the message. As there was no significant correlation between an influencer's effectiveness as an advisor and video usability, it cannot be stated that any of the lower usability scores had anything to do with the host's advisement approach and vice versa. According to the SUS, the score of 86.25 suggests the mode of communication is good, which may allude to the video's structure and platform being free from overt distractions or having other things that would limit the user experience [12].

Limitations: The measure used to determine the effectiveness of the advice from the influencer was modified from the MES. The first change was that the video served as an advisor and thus had fewer requirements than a

traditional mentor. The scale required a Mentorship Profile, which was omitted because each participant would have the same relationship with the advisor and the advisee would have the same basic role for each advisee. Additionally, the relationship between the advisor and the advisee is a one-day, one-time relationship in a group setting, rather than an ongoing, personal mentoring relationship. The scoring was also altered to a total of 55 rather than 60 due to the omission of the accessibility characteristic. Accessibility variables were factored into the synthesis and served as one of the user experience questions which asked participants if they believed there would be any challenges accessing the video or a similar video. Finally, the video was selected by the research team and shown as a group, thus participants did not have to access the advisor themselves. Apart from the adaptations that have previously been described, the engineers of the MES note that there are built-in intractable psychometric issues that limit the validity and reliability of evidence; such psychometric issues, the uniqueness between advisor-advisee relationships, and response bias [3]. Neglecting to ask if the participants have watched the specific video in the study or any of the channels videos could have led to misleading results. However, after observing the responses, it is suggested that very few, if any, participants watched the video prior to the study.

The participants were Ph.D. students and Ph.D. candidates. As suggested in a few comments by participants, the selected video content could have been more useful for high school and undergraduate student entering the computing field. This however, does not invalidate the findings, it merely suggests videos with content more relevant to graduate school, doctoral students, or new industry workers would most likely yield the same, promising results for the sample used.

5 SOCIAL MEDIA INTERACTION PREFERENCES

5.1 Method

Participants: There were 21 participants of the undergraduate survey study. Convenience sampling was used by obtaining volunteers participating in varying summer programs at the lead researchers' institution. Participant ages ranged from 17-29. All but two participants were Black/African American/Afro-Caribbean, one was multiracial, and one preferred not to answer. There were 13 males, 7 females, and one preferred not to answer. There were 7 computer science majors. Non-computer science majors varied: psychology, economics, English, international studies, biology, sociology, and mathematics. Participation occurred after the school year and the following classifications represent the class students were entering in the fall; there were 3 sophomores, 5 juniors, 8 seniors, and 5 post-baccalaureate.

Procedure: The survey was divided into two parts. After consenting, participants completed the first part which included demographic information, the frequency they watch vlog and commentary videos across different platforms, and their likelihood to watch a minority-hosted vlog commentary video on college and career readiness.

The survey then led participants to a link of the selected video and influencer: How to Get into Software Engineering by influencer Jarvis Johnson. Participants were tasked to watch the video and return to complete the survey. The second part of the survey asked questions based on their reactions to the video. This section consisted of four parts: (1) the MES [3]; (2) the SUS [12]; (3) an open-ended user experience questionnaire including additional questions based on the Interaction Design's 5-dimensions of interaction design [11]; and (4) their likelihood to interact with the influencer across platforms for varying advisement purposes. Frequency and likelihood prompts were totaled and analyzed using descriptive statistics. Scores for each survey were calculated respectively. Open-ended questions were analyzed using a thematic analysis.

5.2 Results

Demographics: Average scores were out of a total of 6 being most often. On average participants often watched vlog and commentary videos on YouTube (Mean=5.10; SD=1.00) and Instagram (Mean=4.52; SD=1.44), moderately on Snapchat (Mean=3.76; SD=1.92) and Twitter (Mean=3.14; SD=1.74), and rarely on Facebook (Mean=2.00; SD=1.05), LinkedIn (Mean=1.67; SD=1.74), Vimeo (Mean=1.19; SD=0.51), and Dailymotion (Mean=1.14; SD=0.57). Participants were also asked about their interaction with large profiles (or influencer profiles). Participants often interacted with influencer profiles and videos on Instagram (Mean=4.33; SD=1.65), moderately on YouTube (Mean=3.9; SD=1.73), Twitter (Mean=3.29; SD=1.85), Snapchat (Mean=3.05; SD=1.72), and Facebook (Mean=2.05; SD=1.32), and rarely on LinkedIn (Mean=1.76; SD=1.22), Vimeo (Mean=1.19; SD=0.51), and Dailymotion (Mean=1.19; SD=0.51). Computer science majors were asked if they would use a vlog commentary influencer for computing college and career advice. Six of the 7 computer science majors identified that they were likely to watch such a vlog commentary video and 4 would interact with such an influencer on social media.

Non-CS Majors Demographics: Of the 10 participants that were not STEM majors, 6 participants reported they may be interested in a STEM career, 1 wanted a STEM career and 3 did not want a STEM career. Five non-STEM participants identified some interest in a career in the computing field, 1 identified interest, and 4 participants were not interested. Of the 4 STEM participants (outside of computer sciences), all were at least somewhat interested in a career in the computing field. Eleven of the 14 non-computing participants were at least somewhat aware of interdisciplinary careers that integrated their field of study with computing. Non-computing major participants were asked if they would watch vlog commentary videos for college and career readiness. Eleven participants were likely to watch such videos for their respective majors and 8 participants were likely to watch such videos for a computing. Non-computing major participants were also asked if they would interact with a social media influencer the produced content on college and career readiness. Ten participants were likely to interact with such an influencer for their respective majors and 8 participants were likely to interact

with such an influencer for a computing.

Influencer advisor usability: Participants' ratings of the influencer varied with a median score of 49 out of a maximum of 60 (approximately 82%) (Mean=47.62; SD=5.49). The usability score for using the videos as a tool was 77.14 out of 100. There was a correlation between video usability (Mean=39.62; SD=8.27) and influencer effectiveness (Mean=47.62; SD=5.49) as an advisor using a paired-samples t-test: $t(19)=$, $p=0.001$. Participants were asked how the influencer communicated. Participants varied on their perception of the influencer communicating with short messages such as limited words and short video clips. On average from a total of 6, participants rated the influencer's communication with short messages 4.19 (SD=0.98) and 3.38 (SD=1.40) for the video's use of visual representations.

CS Major User Experience: Computer science majors believed the video could be used for encouragement and to prepare them for a career in software engineering. Participants believed the influencer's message was clear and simple and that the influencer was credible because he seemed authentic and had valid work experiences. CS participants thought the advice was good but was expected: *"He gave good, general advice"*. There was no change in reaction to the influencer and his video after watching: *"Nothing I haven't heard before as a CS major"*. As a result, many CS participants thought the content was less valuable to them and more valuable for those still deciding their general career paths: *"not that valuable to me because I already knew this information before the video"*. Outside of annoying advertisements and finding specific advisement within a video, participants found no challenges with accessibility.

Non-CS Major User Experience: Non-computer science majors used the video for encouragement, for a general idea of how to get into computer science and to gauge their interest in software engineering. Participants discussed how the influencer's content was very simple to follow, though could be confusing if one were to not pay attention and due to the lack of representative images: *"It was simple if you payed attention for the whole 3 minutes. You cannot turn your back to it and think you're going to understand what he meant"*. Participants believed the influencer was credible due to his work experience and transparency about his personal journey. Participants described the influencer to be useful, inspirational, and relatable, though some believed the way he delivered his message to be predictable. Participants believed the influencer used was accessible given that he continues to use YouTube and other prominent social media sites. Participants suggested that they would use the influencer *"I think that those platforms, especially YouTube, are really easy to access at any point of the day when a person is free"*. Participants ranged in how they valued the video: some did not, some valued it greatly, and some noticed its value but didn't believe it was applicable for them: *"It wasn't specifically valuable to me because I don't want to become a software engineer, but his goal reaching advice could be useful to me"*. Some participants believed the influencer was more entertaining and relating than what they expected, while others had no change. Participants recommended the particular video to middle and high school students,

undecided-major college students, and anyone rather in academia or industry who wanted to venture in software engineering and computer science.

CS Major Interaction Preferences: CS Majors: The seven CS major participants were asked how they would interact with the selected influencer. Five participants were likely to follow at least one of the influencer's social media accounts and 6 participants would share the account to others. Participants were asked about the context in which they would interact with the influencer. Four participants would reach out to the influencer for professional knowledge, 3 participants would reach out for personal professional questions, and 3 participants would reach out for professional encouragement and support. Four participants would reach out to the influencer to gain more knowledge in their career field. Four participants would reach out for personal constructive criticism, 3 for personal contribution to their work, and 4 for more resources.

In terms of interaction, 3 participants would leave a comment, 4 participants would respond to a poll, 4 participants would respond to a video story, 4 participants would watch an extended video such as an IGTV video or Facebook embedded video, and 4 participants would watch a livestream. A participant discussed they were very likely to interact with polls because *"polls are simple and fun"*. All participants were likely to interact with the influencer at all, though one participant noted *"I personally don't like to interreact with influencers on any platforms and don't enjoy using social media as a whole"*.

Non-CS Major Interaction Preferences: Twelve participants responded to how they would interact with the selected influencer. Eleven participants would reach out to the influencer for professional knowledge, 10 participants would reach out for personal professional questions, and 10 participants would reach out for professional encouragement and support. Eleven participants would reach out to the influencer to gain more knowledge in their career field. Nine participants would reach out for personal constructive criticism, 9 for personal contribution to their work, and 11 for more resources.

Fourteen participants responded to interacting across social media features. Nine participants were likely to follow at least one of the influencer's social media accounts and 8 participants would share the account to others. Eight participants would leave a comment, 9 participants would respond to a poll, 9 participants would respond to a video story, 7 participants would watch an extended video such as an IGTV video or Facebook embedded video, and 7 participants would watch a livestream. A participants detailed that *"it is really easy to share a social media account"*. Others discussed they *"would be likely to interact if the influencer posted things that I am interested in"* and *"to give feedback"*. Eight participants were somewhat unlikely interact with the influencer at all. One participant noted they would not interact with the influencer because *"This is not my field of interest or study"*.

5.3 Discussion

YouTube and Instagram are consistently used by Black undergraduate students [7]. Computer science majors agreed

to being likely to interact with a vlog commentary influencer for college and career readiness. The majority of non-computer science majors identified that they were likely to interact with a college and career readiness vlog commentary influencer representing both their respective major and computing.

Overall, participants reported high scores for the influencer as an effective advisor and for his video being a usable tool. However, the scores were highly correlated, therefore it is not clear if participants' perceptions of the influencer influenced their perceptions of the video as a tool, and vice versa. When focusing on the factors of visual representation use and short communication, the clarity and comprehension of the tool could have performed better, but these findings were not found within the actual SUS data. The lack of visual references, in particular, was more pressing with the non-computer science major participants and should reflect to other novices who may not be familiar with some of the terminology and subject matter.

As stated in a previous section, the influencer or social media personality, flourished in supportiveness, encouragement, and authenticity. On the other hand, the video seemed to lack in exceeding expectations and providing new and more thorough advisement, particularly for CS majors. CS majors were a bit more skeptical of the influencer credibility: *"The host seemed authentic, but the only source of credibility we have is him saying where he works and went to school and the number of followers he has"*.

CS majors seemed very willing to following and sharing content by a computing influencer, but more hesitant about interacting with one on a more personal and professional level and across different social media features. Non-CS majors, however, were more willing to interact with a vlog commentary influencer for all advising purposes and across confidential interaction features such as responding to a poll or a story. Though non-CS majors were a bit more supportive towards interacting with the selected influencer, it is likely that the support is not accurate as participants even stated they did not value the video as much because they do not want to be software engineers or computer scientists. If the video was in their respective majors, perhaps even an interdisciplinary career that involves their field and the computing field, the results would be more generalizable.

Limitations: There were a few limitations to the study. The Mentor Effectiveness Scale was treated like the previous study; however, participants accessed the video on their own personal computers on their own time (see 4.3 Limitations). Also, two individuals provided blank and/or misleading data on the last section and the data was omitted from the analysis. A factor analysis was not performed to determine the items that repeated the same data or that were highly correlated between scales. Finally, the sample size of 21 was low and too small for quantitative analysis to be fully generalizable.

CONCLUSION

The widespread accessibility and use of social media and video hosting platforms can and should be

leveraged as a viable means of advisement in computing college and career readiness for minority undergraduate students. As videos vary in style, directness, and length, a diversity of minority influencers can accommodate a diverse population of minorities in computing. Though videos are finite, social media has many modes for communication where advisees can interact for further advice and influencers can recommend and provide additional resources to further inform advisees. With a usable platform and high advisement value, organizations and companies can leverage social media and vlog commentary influencers as a means to give effective and engaging base level advice.

This study warrants future studies on the effectiveness of YouTube and social media influencers in minority computing advisement. The research team intends to explore long-term interaction with influencers, measuring varying interaction and analytics metrics to determine the various mentorship roles that can emerge in this form of virtual mentorship. The hope is that this method of mentorship extends to other academic and industry disciplines and social media platforms, providing a supplemental resource for those students who have limited access to in-person advisors or role models.

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