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Using Graphic Elicitation to Explore Community College Transfer Student Identity, Development, and Engagement


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Abstract

The focus of this paper is to illustrate the use of graphic elicitation, in the form of a relational map, to explore community college transfer student (CCTS) identity, development, and engagement at four-year institutions. Using graphic elicitation illuminated aspects of CCTSs that they may not have been able to otherwise verbalize, and was used in combination with interview questions designed to capture participants' development and engagement, investigating how they made meaning of their institutional experiences. A constructivist grounded theory approach was applied, given the lack of available literature pertaining to CCTSs in these areas. This paper draws upon and contributes to the current graphic elicitation literature and provides a detailed outline of the study's research design and thorough justification of the use of a relational map. The interview questions and relational maps worked in tandem to uncover theoretical themes that contributed to findings. The study's methodological approach, design using graphic elicitation, and limitations are discussed in addition to potential future research using graphic elicitation techniques.

Keywords

Qualitative Research, Graphic Elicitation, Grounded Theory, Relational Maps, Transfer Students, Student Development Theory

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Using Graphic Elicitation to Explore Community College Transfer Student Identity, Development, and Engagement

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The focus of this paper is to illustrate the use of graphic elicitation, in the form of a relational map, to explore community college transfer student (CCTS) identity, development, and engagement at four-year institutions. Using graphic elicitation illuminated aspects of CCTSs that they may not have been able to otherwise verbalize, and was used in combination with interview questions designed to capture participants' development and engagement, investigating how they made meaning of their institutional experiences. A constructivist grounded theory approach was applied, given the lack of available literature pertaining to CCTSs in these areas. This paper draws upon and contributes to the current graphic elicitation literature and provides a detailed outline of the study's research design and thorough justification of the use of a relational map. The interview questions and relational maps worked in tandem to uncover theoretical themes that contributed to findings. The study's methodological approach, design using graphic elicitation, and limitations are discussed in addition to potential future research using graphic elicitation techniques. Keywords: Qualitative Research, Graphic Elicitation, Grounded Theory, Relational Maps, Transfer Students, Student Development Theory

Graphic elicitation has emerged as a powerful instrument to supplement interviews seeking to gather knowledge or experiences that are not fully understood (Bagnoli, 2009; Copeland & Agosto, 2012; Crilly, Blackwell, & Clarkson, 2006; Umoquit, Tso, Varga-Atkins, O'Brien, & Wheeldon, 2013). Graphic elicitation may be used to explore complex and abstract ideas that participants are unable verbalize during a typical interview (Crilly et al., 2006). Johnson and Weller (2002) suggest elicitation techniques for the purpose of researching the participants' tacit knowledge about prior experiences and/or emotions. In our research, using graphic elicitation with interviews was necessary to explore the complex constructs of community college transfer students' (CCTS) identity, development, and engagement through a grounded theory study.

The purpose of this study is to illustrate the use of graphic elicitation in the form of a relational map in conjunction with semi-structured interview questions with college students. This draws upon a larger qualitative, constructivist grounded theory study that explored the identity, development, and engagement of traditionally aged CCTSs attending two four-year public institutions in a grounded theory.

As researchers interested in postsecondary student success and questions of methodology, we undertook this study to explore CCTS identity, development, and engagement after transfer – under researched topics for this population—using a promising but untested data collection approach. We begin with an introduction to the use of graphic elicitation in research. After presenting research questions that guided the study and the grounded theory research design, we discuss the ethical considerations in the research. We then provide a justification of using graphic elicitation, in the form of a relational map, to explore CCTS identity and development, in conjunction with interview questions that explored the population's engagement. To guide other researchers in the use of graphic elicitation, next, we detail our methodological approach to this study, highlighting the use of the relational map

activity. We discuss how participants completed the relational maps, and how their use of the map contributed to the study's findings. Finally, we close with a discussion on limitations and how graphic elicitation techniques could be applied to future research in related areas.

Study Background

CCTSs are an ever-growing presence at four-year institutions (Flaga, 2006; Handel, 2007; Laanan, 1996; Townsend, 2008). One in five community college students transfer to a four-year institution, and 60% of those students persist and earn a bachelor's degree within a four-year timeframe upon transfer (National Student Clearinghouse Research Center, 2012). This an increase compared to the 23% of CCTSs who earned a bachelor's degree within six years of attending a four-year institution back in 1995 (Peter & Cataldi, 2005). Despite this population's growth at four-year institutions, campus resources continue to be tailored to native college students, creating challenges and inequities for CCTSs (Lipka, 2008). Although the transfer student literature adequately addresses issues such as retention, academic achievement, and the transfer process itself, there is little literature in the areas of CCTS' identity, development, and engagement. These three areas have been well researched for the four-year, native college student populations, or those students who began as freshmen, but little is known about CCTS nonacademic transition process after they transfer. Understanding transfer student identity, development, and engagement illuminate ways this population can be better served to support their outcomes.

Research Design Using Graphic Elicitation

Although the use graphic elicitation of diagrams, drawings, and other visual methods of data collection have increased in recent years (Umoquit, Tso, Burchett, & Dobrow, 2011) definitions remain inconsistent across scholars and fields. We draw primarily from three prior papers (Bagnoli, 2009; Thygesen, Pedersen, Kragstrup, Wagner, & Mogensen, 2011; Umoquit, Tso, Varga-Atkins, O'Brien, & Wheeldon, 2013) to define our data collection and elicitation approaches while still being informed by the available broader literature on visual methods. First, Bagnoli (2009) describes graphic elicitation methods as those that involve researcher or participant produced diagrams. Bagnoli specifically uses relational maps, also our technique, as an approach to capturing relationships. Second, consistent with Umoquit et al. (2013), we use elicitation to attend to how data was collected "both through and as diagrams" (p. 7) in order to gather data and to improve the quality of that data by using the visual displays to clarify and reveal meanings, relationships, structures and understandings. This definition is more specific than Varga-Atkins and O'Brien's (2009) definition of elicitation as "the means by which the researcher gains the required data from the interviewee" (p. 53). Finally, we also emphasize Thygesen, Pedersen, Kragstrup, Wagner, and Mogensen's (2011) approach that a structured graphic elicitation technique such as a relational map, serves as a cognitive frame for participants. Although other terms are used in the literature, including diagrammatic representations, participatory diagramming, and diagrammatic elicitation (Crilly, Blackwell, & Clarkson, 2006; Umoquit et al., 2013; Umoquit et al., 2011), we use the terms graphic elicitation and relational map in this article.

Crilly et al. (2006) wrote that using graphic elicitation, or diagrammatic representations, as part of the interview process "offers a useful addition to the established array of elicitation stimuli" (p. 342). These diagrams can take various forms, contingent upon the study, with the main idea being that some level of abstraction exists, often with some level of parameters and direction (Tso, Varga-Atkins, O'Brien, & Wheeldon, 2013; Umoquit et al., 2013; Varga-Atkins & O'Brien, 2009). Based on the research of Baxter Magolda (2009), meaning making has been

predominantly explored through interviews; through graphic elicitation we further explored how the CCTS population made meaning of their identity, development, and engagement at four-year institutions. This was accomplished through administering the graphic elicitation, which allowed participants to express ideas that they may not have verbalized otherwise, and then asking the participants to manipulate the graphic elicitation, as will be discussed later in this article, to illustrate their own development during the transition to their four-year institutions. Furthermore, definitions of identity and development can overlap, therefore using graphic elicitation added clarity to these areas and contributed to theory generation as we explored meaning making among the CCTS population. We suggest that graphic elicitation is uniquely suited to research that explores meaning making processes.

Graphic elicitation techniques have been predominantly used in psychology and health-based fields (Gabb & Singh, 2015; Thygesen, Pedersen, Kragstrup, Wagner, & Mogensen, 2011; Varga-Atkins & O'Brien, 2009). Using graphic elicitation as part of our research with CCTSs expanded the use of this technique into transition and retention research in post-secondary education as we investigated the population's identity and development, which are rooted in psychology. Crilly, Blackwell, and Clarkson (2006) suggest, and we argue, that graphic elicitation can lead to theory generation through discussions with the participant about the graphic he or she creates, lending itself to a grounded theory approach. Indeed, our experience is supported by Buckley and Waring (2013) who advocate for the use of diagrams and drawings in grounded theory. Our graphic elicitation activity was aligned with grounded theory and Constant Comparative Method (CCM) given that these types of diagrams can help a researcher make easier comparisons across participants, and are structured enough to elicit responses to research questions (Varga-Atkins & O'Brien, 2009).

Using Graphic Elicitation in Grounded Theory Research

We used the grounded theory approach for this study's framework and research design to answer the study's research questions. Applying a grounded theory approach to this study allowed us to anchor, or "ground" our emerging theories in qualitative data, offering insight, understanding, and best practices to the research problem to address a gap in the literature (Strauss & Corbin, 2008). The application of grounded theory can be used as an underpinning in the research design, enabling the researcher to openly ask what is taking place in the setting without being tied to a specific theory or set of theories (Charmaz & Mitchell, 2001). We entered the CCTS's environment with identity, development, and engagement literature as a mere guide to my research while being open to the emergence of new data that can aid in the development of a new theoretical approach pertaining to this population. Our approach, or specifically what Charmaz (2006) refers to as the "constructivist" grounded theory approach, not only uniquely illuminated CCTS experiences, but also filled the gap in the literature pertaining to this population's identity, development, and engagement.

The constructivist paradigm supports viewing and accepting multiple realities that need to be discovered through naturalistic inquiry (Charmaz, 2006; Ponterotto, 2005). Moreover, this constructivist approach enabled us to acknowledge the literature in relation to our study while addressing our research design in alignment with our research questions. Constructivist grounded theory focuses on the phenomena being studied and draws on participant experiences in the data to develop a "theoretical rendering" based on the researcher's interpretations in abstract terms (Charmaz, 2006). We offer that using graphic elicitation contributed to this rendering by allowing the participant to create a graphic to explore his or her experiences as a CCTS at a four-year institution and express concepts regarding identity and development that he or she may not be able to otherwise share, such as complicated emotions, abstract ideas, or personal thoughts (Crilly et al., 2006). Buckley and Waring (2013) suggest that the use of

diagrams in grounded theory is a neglected practice that offers an “alternative form of communication for interviews and [acts] as a tool for representation of theoretical complexity” (p. 149). We found that the use of relational maps can deepen interviews with complex constructs and support the development of theory, thus contributing to the literature on the use of visual tools in research.

Ethical Considerations

A primary ethical consideration for this study was the question of how it might encourage researchers to ask themselves, “is this research *on* these people or *with* these people” when considering the benefits and risks of research (Sieber & Tolich, 2013, p. 25). Our attempt to ameliorate this concern is evident in our use of graphic elicitation, which involves participants as co-constructors of knowledge rather than mere subjects.

In addition to understanding the vulnerability of the population we were studying, we also took measures to ensure our participants were protected and aware that minimal risks were involved with this study. We completed the Collaborative Institutional Training Initiative (CITI) Human Subjects training at our institution and secured approval from our university's Institutional Review Board (IRB) to carry out this study. We led our participants through the informed consent process, explaining that participation was strictly voluntarily and that they could remove themselves from the study at any point. We explained that this study was part of a doctoral dissertation, and that its purpose was to understand transfer student identity, development, and engagement at four-year institutions. We also provided participants with aliases to protect their identities.

Finally, we remained mindful of the institutional gains of this study versus the benefit to students. This study resulted in further understanding of CCTS and thus may, ultimately benefit the institutions by providing better supports to future students. Although the voices of current students were heard, they will not benefit directly from any learning that was gained through the research.

Research Questions

Our overarching research question regarding grounded theory drove our research. We sought to understand the CCTS meaning-making process, and how CCTSs engaged in meaning-making through their identity, development, and engagement after they transferred to their four-year institutions. Furthermore, based on the research of Baxter Magolda (2009), meaning making has been predominantly explored through interviews; applying graphic elicitation techniques allowed us to further explore identity, development, and engagement. Definitions of identity and development can overlap, therefore using a graphic elicitation activity added clarity to these areas and contributed to theory generation as we investigated the meaning-making process.

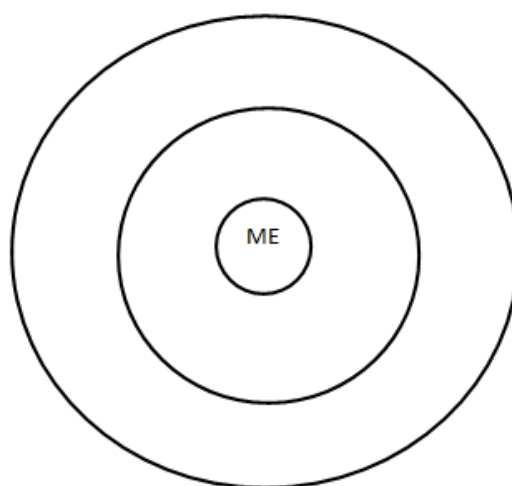
We posed the following research question in the larger study in light of the lack of available literature regarding CCTS identity, development, and engagement: How does a CCTS make meaning of his or her identity, development, and engagement at a four-year institution?

The graphic elicitation and interview questions were necessary in answering this question since little is known about transfer student identity, development, and engagement. Another research question not pertinent to this article inquired about the theories that would emerge when exploring CCTSs identity, development, and engagement. As will be explained in the upcoming sections, five additional sub questions inquired about how participants described their identity, development, and engagement at four-year institutions, and how these three elements interacted with and contributed to one another (see Table 1).

Method

Graphic Elicitation as a Relational Map

The specific graphic elicitation activity for this grounded theory study was a relational map (see Figure 1), designed to explore CCTS identity and development during the interview, and contribute to theory generation as part of the constructivist grounded theory approach. Relational maps can help participants conceptualize the distance between ideas or items, with the most important items being closest to the participant, and the less important depicted as being farthest away (Bagnoli, 2009). Since the literature on both identity and development have their roots in psychology (Chickering, 2010; Kegan, 1994; Perry, 1970), we offer that applying graphic elicitations in this manner lends itself to the origins of these two areas, providing opportunities for deeper exploration of identity and development using the grounded theory approach.



Working from the inside out, write words (any nouns, adjectives, etc.) in the circle that you would consider being part of your identity as a college student, with items in the outer circles being the least important. The farther away you write the items from the center labeled “ME”, the less they are part of your student identity. You can even write items outside of the circle if you would like. There are no wrong answers!

- You have five minutes to complete this activity. Feel free to ask questions at any point.
- Here are some questions to help guide your thinking:
- What words would you use to describe yourself as a college student?
- What words would you use to describe your college experience?

Figure 1. Graphic Elicitation Activity

In the style of Umoquit et al. (2011), we created a map that provided a fundamental structure but was flexible enough to be manipulated by the participant to "simplify complex ideas" (Umoquit et al., 2011, p. 3). Participants were asked to write words that they felt were part of their own identities in Euler circles, with the center circle having the word "Me" to

indicate proximity to one's identity. Euler circles within a diagram allow participants to cognitively recognize relationships between items, and the significance of those relationships based on their distance from each other (Mineshima, Okada, Sato, & Takemura, 2008). In alignment with grounded theory, no prompts, such as banks of preselected words, were supplied initially, it became clear during the pretesting phase that some general questions were necessary to guide the participants' thinking. These prompts were intentionally designed to trigger thoughts about the college experience and “evoke deeper elements of human consciousness” (Buckley & Waring, 2013, p. 150) as the participant completed the map. Therefore, we provided two general questions at the bottom of the map under the directions. The graphic elicitation activity not only provided an opportunity for the participant to describe something that he or she may not be able to verbalize (Bagnoli, 2009), but was also used as a tool to drive the semi-structured interview portion of the study.

Semi-Structured Interview

In addition to using graphic elicitation, applying semi-structured, intensive interviewing techniques (Charmaz, 2006) enabled us to have in-depth conversations with participants about their experiences while tying in the graphic elicitations they created. Such notions are in alignment with Kwasnicka, Dombrowski, White, and Sniehotta (2015) who suggested visual data as part of a data-prompted interview (DPI) can trigger participant memories and add a level of richness to the interview. This method painted a holistic picture of CCTSs and their identity, development, and engagement at four-year institutions that contributed to meaning making.

Our interview questions aided us in capturing and interpreting the stories regarding this population's experiences at their four-year institutions, while drawing from the relational map activity to further investigate how they engaged in meaning making. Questions were designed to explore development and engagement while pulling in the relational map for further conversations regarding identity.

Setting

We applied criterion sampling in order to keep our study specific to the population we wished to explore (Maxwell, 2013). We also used theoretical sampling in that we did not study a specific group within the CCTS (males, females, minority students, etc.) based on the grounded theory approach and for data collection purposes (Charmaz, 2006; Strauss & Corbin, 2008). Theoretical sampling helped us to remain grounded in our data and maintain the scope of the study (Charmaz, 2006).

We purposively selected two four-year public, medium-sized suburban institutions for this research. We used two institutions to improve the study's rigor and, as suggested by Creswell (2013), to obtain “multiple perspectives that range over the entire spectrum of perspectives” (p. 151). Moreover, conducting this research at two institutions increased our participant pool and enabled us to obtain more perspectives. Before data collection, IRB approval was obtained from both participating institutions as well as the researchers' institution.

The first institution has approximately 13,000 undergraduate and graduate students. This institution was selected for this study given that it serves a large number of transfer students on the mid-Atlantic seaboard, and enrolled 1,800 students in the 2013-2014 academic year. The second institution has approximately 10,000 undergraduate and graduate students and enrolled about 1,000 transfer students in the academic year. This institution, like the first one, draws its transfer applicant pool from its surrounding community colleges.

Participants

Based on Carlan and Byxbe's (2000) definition of transfer students, we recruited students who entered either participating institution between fall 2013 and spring 2014 and who had attended two-year community colleges and then transferred to one of the two aforementioned four-year institutions with junior status, meaning they had earned at least 60 credits at their two-year institutions. Participants were traditionally college aged, between 19 and 22 years old, and had spent at least two semesters (one academic year) at either of the two research settings. This timeframe provided sufficient time for CCTSs to become entrenched in the four-year institution so they can fully speak to their experiences, but is still recent enough for them to reflect on their community college experiences in alignment with the transfer student literature (Hills, 1965; Laanan, 1996). This sampling method limited the number of participants to be considered for this study given that they were selected based on specific criteria and maintained the scope of our research (Maxwell, 2013).

Recruitment and Incentive

Potential participants who entered either institution between fall 2013 and spring 2014 were contacted via blanket email blasts, with assistance from departments at EAU and CPU that interacted with CCTSs regularly. Students who participated in the study received a \$10 gift card to local food establishments as an incentive.

Data Collection. Table 1 illustrates how each data source was used in answering our research questions, and which elements, identity, development, and engagement, were addressed through these questions. The overlapping features of identity and development in particular imply complexity; therefore, graphic elicitation provided further clarity while determining key items that are part of a CCTS's identity. Our research questions were explored and answered through multiple data sources, to create a rich, holistic rendering of CCTS identity, development, and engagement that is underscored by the meaning making process. Furthermore, specific questions in our interview protocol, gleaned from the literature, addressed elements of identity, development, and engagement throughout the interview.

Table 1
Research Questions Explored and Strategies Applied

Research Questions	Element(s) Explored	Data Source(s)
Overarching Research Questions (ORQ):		
ORQ1: How does a CCTS make meaning of his or her identity, development, and engagement at a four-year institution?	Identity	Journal/ Analytic Memos
ORQ2: What theory emerges from exploring CCTS identity, development, and engagement?	Development Engagement	Relational Map Interview
Sub-Questions (SQ):		
SQ1: How does a CCTS describe his or her identity after attending a four-year institution for one year?	Identity	Relational Map Interview
SQ2: How does a CCTS describe his or her development after attending a four-year institution for one year?	Development	Relational Map Interview
SQ3: How does a CCTS engage with his or her four-year institution after attending the institution for one year?	Engagement	Interview
SQ4: In what ways, if any, does a CCTS's engagement with his or her four-year institution after one year of attendance contribute to his or her college student development?	Engagement Development	Interview
SQ5: In what ways, if any, does a CCTS's development contribute to his or her identity after one year at a four-year institution?	Identity Development	Relational Map Interview

Participant Completion of Relational Maps

Students who responded to our recruitment email were contacted to confirm their interest in participating in the study and to set up an interview time and location. Interviews took place at times that were convenient for the participants and locations selected were appropriate for completing the relational map and interview as suggested by Varga-Atkins and O'Brien (2009). The interviews were, on average, an hour long.

The relational map was presented to the participant to complete after we reiterated the purpose of the study and he or she signed the informed consent form. Therefore, participants completed the map as the first part of the interview, prior to any interview questions. Having

students complete the map first not only established the importance of the map from the beginning of the study, but, per Crilly et al. (2006) also immediately centered our interview questions and discussion on the graphic elicitation activity.

Participants were originally given five minutes to complete the relational map, however, during pretesting and as the study progressed, we realized that participants needed more time to process what was being asked of them, and time to orient themselves with the activity. We found that ten minutes was a sufficient amount of time for participants to complete their maps.

When we conducted our pilot studies, we remained in the room while students completed their maps. However, during actual data collection, some of the participants seemed to have difficulty completing the maps while we were in the room. In subsequent interviews, we left the interview location and waited in a separate area for a few minutes so we did not appear to hover over the participant.

All participants were asked if they were willing to be audio recorded prior to beginning the interview. Twelve out of the 16 EAU students and all nine CPU students agreed to be audio recorded. We took detailed notes during the interviews for those participants who declined to be audio recorded. After each recorded interview, audio files were sent to a third party for transcription. All audio files were saved on a flashdrive that was kept securely in one of the researcher's offices, in compliance with IRB requirements, while we waited for the transcripts. No audio files contained any identifying information and were labeled according to a participant's alias, not with his or her real name. Once we received the transcriptions, the audio was deleted. All transcripts were organized in a Pendaflex system and locked securely in a filing cabinet in one of the researcher's offices in compliance with IRB requirements.

After the participants left the interviews, we completed field notes which in the style of Rossman and Rallis (2003), included a summary of the interview, a description of the interactions with the participant, and analytic memos. Such note taking also contributed to the development of our theories regarding CCTS identity, development, and engagement. Memos are key in the process of grounded theorizing and reflection on the diagrams created by the students was consistent with Strauss and Corbin's (2008) position of moving away from data collection to conceptualization. Buckley and Waring (2013) wrote that, diagrams, when incorporated in a grounded theory study, "become an active part of the theory generation and not only support developing conceptualization but also actively encourage clarity of thought" (p. 152). Therefore, writing analytic memos and taking notes enabled us to look for patterns across the relational maps and interview content while we engaged in CCM to fully develop theories based on the data.

Data Saturation and Graphic Elicitation

Data saturation is the intent and ultimate goal for grounded theory data collection, giving way to theory generation as common categories emerge and are repeated (Charmaz, 2006). Theoretical saturation, as it pertains to grounded theory for generating theory, occurs when no new codes emerge from the data based on comparisons and when categories become clearly defined (Birks & Mills, 2011).

Saturation occurred for this study through the application of CCM and the evolution of themes during the coding process, leading to theory generation (Guest, Bunce, & Johnson, 2006). Data saturation was reached after we interviewed twenty-five participants ($n = 25$), sixteen participants from EAU and nine from CPU. No new codes related to our research questions emerged after that point and similar themes were emerging from the relational maps that contributed to the theory. Using both graphic elicitation and semi-structured interview questions generated a vast amount of data, helping us see emerging themes rather quickly as

we first analyzed the relational maps, then the interview transcriptions, then integrated the data to develop our theories. Furthermore, using two research sites helped us in achieving saturation by providing me access to CCTSs in multiple settings, indicating that saturation was occurring beyond just one institution and moved us beyond research at our own institutions (Creswell, 2013).

Data Analysis

The preparation for data analysis was three-fold: the interviews were fully transcribed, the interview notes for the unrecorded interviews were reviewed, and the relational map data were entered on a spreadsheet. Once these early data analysis steps were completed, we began three cycles of CCM coding. The codes from each round of coding were listed on individual spreadsheets for each participant, listing the axial codes specifically on a separate spreadsheet to determine emerging categories and to engage in CCM. The categories were grouped into themes that gave way to the theoretical codes that ultimately led to development of three theories, each pertaining to CCTS identity, development, and engagement, and an overarching theory suggesting how CCTSs make meaning of their experiences at a four-year institution through the lenses of these three areas.

After each interview and in the spirit of CCM, we coded and analyzed each relational map in the style of Copeland and Agosto (2012). We used individual spreadsheets to list the words and phrases students wrote in each circle. To capture distance between the circles, each column on the spreadsheet was labeled to represent a circle on the map ("Me", second circle, third circle, etc.). We then entered the words in the columns that corresponded to how they were written in the circles. Then based on the frequency of those words and phrases from their occurrences on the maps, we created a color-coded codebook to group them into categories. Table 2 provides examples of the categories that emerged from the maps during data analysis. These categories were then integrated into the spreadsheet with the categories from the interviews, generating theoretical codes and contributing to the development of the CCTS identity, development, and engagement theories.

Table 2
Relational Map Category Integration with Interview Question Data

Theoretical Codes	Themes (Axial)	Categories (Focused)	Element Expressed	Map categories	Code Definition
Alternate Identity	Alternate College Experience	Piece of College Life How do I get the experience (conflict)?	Identity Engagement	Interactions College activities Distance	Acting differently at home vs. on-campus
	The Neighborhood	Hometown/High school connection	Identity Engagement	Interactions College Activities	"Quiet" on-campus
Engaging Differently	Building Coalitions	Where are my connections (conflict)? Exclusive Groups	Engagement	Interactions Distance	Staying within groups of other transfers
	In need of a mentor	Move on, move up In search of role models	Development Engagement	Academic/Major College Activities Interactions	Looking for mentors in freshman and professors
	Accessing resources	Word of mouth			
Fitting it all in	Two years to narrow in on career	Feeling conflicted with major (conflict)	Development	Stress/overwhelmed Academic Major	Regret and uncertainty
	Advantages for natives	Time is of the essence Some big secret	Engagement	Determination College Activities Responsibility	Access to resources natives already know about
	Anxious about future	What do I do here (conflict)? Fear of the unknown Uncertainty about future (conflict) Competition	Development	Financial Stress/Overwhelmed Working/job Future/Career Plans	Uncertainty of future

Integrating our themes in this manner after thoroughly analyzing the relational maps supported saturation, as we were able to efficiently group themes and clearly see emergent patterns as time went on and we collected the maps and compared them with the interview transcripts.

The relational maps and interviews worked in tandem to contribute to data saturation and theory generation. As the interviews progressed, we began to uncover the same themes that contributed to theoretical saturation by interview 21. However, we continued interviewing to verify that we reached saturation by following up our potential theories that were emerging based on the categories developed during CCM. This was accomplished through continued intense data analysis of the relational maps to verify that no new themes emerged. Based on participant responses, we determined that theoretical saturation had been achieved and ended the interview process so we could focus on fully articulating our theories and writing our findings.

Although the relational map was meant to provide insight into identity and development in conjunction with the interview questions themselves, it also ended up shedding light on engagement. Therefore, we did not parse out individual findings from the maps and the interview questions but wove them throughout our findings to support our emergent theories.

Completed Relational Maps

The completed relational maps varied in appearance depending on the participant. Participants wrote a variety of words and phrases in the circles of their maps, given that there were no parameters used in filling out the map. Though it often took participants a few minutes to really gain momentum with filling the map in (some more than others), this graphic elicitation technique helped participants in conceptualizing distance and expressing aspects of themselves in ways that they perhaps could not verbalize (Copeland & Agosto, 2012). "Allison's" map (see Figure 2), for example, was very strong with abstract concepts, including her anxieties and fears, that she perhaps may not have been able to articulate otherwise. "Mary", for example, opted to write detailed phrases on her map (see Figure 3). Furthermore, when asked how the placement of the words in the circles would change compared to their first year of attending community college, most participants confirmed verbally that the words written closest to the center would be moved to the outer circles or disappear altogether. To illustrate this, the twelfth participant, "Drew," went a step further and used a different color pen from the one he used to initially fill the map, and drew circles and arrows to indicate what would move, disappear, etc. (see Figure 4).

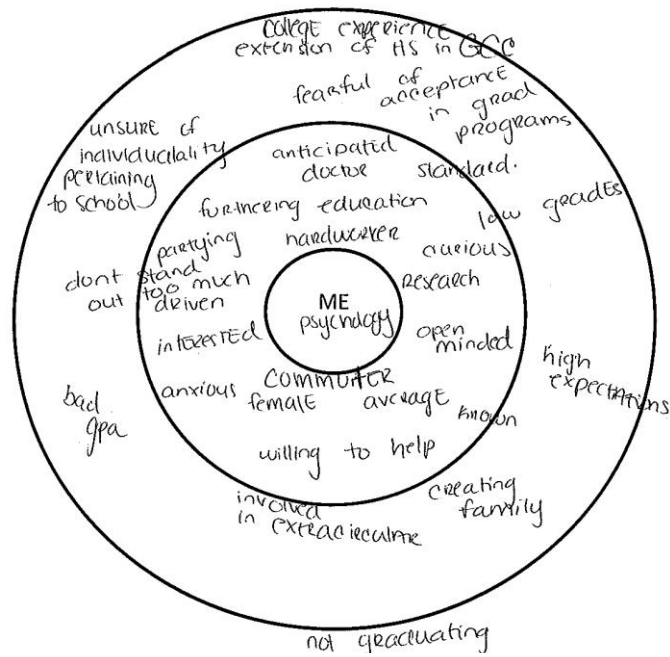


Figure 2. Allison's Relational Map

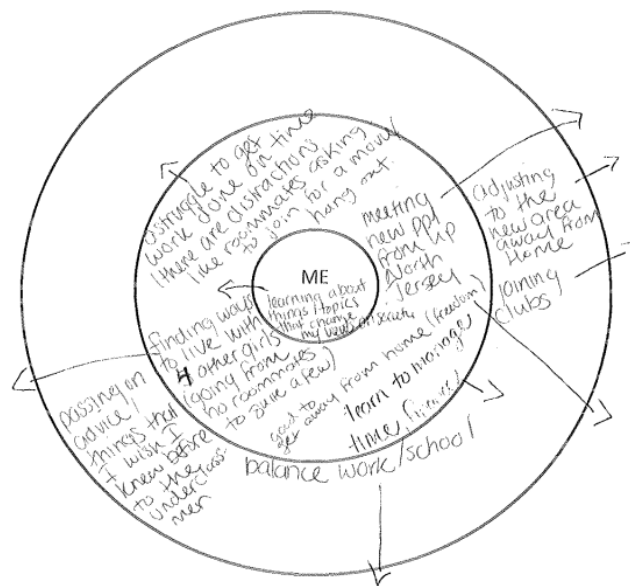


Figure 3. Mary's Relational Map

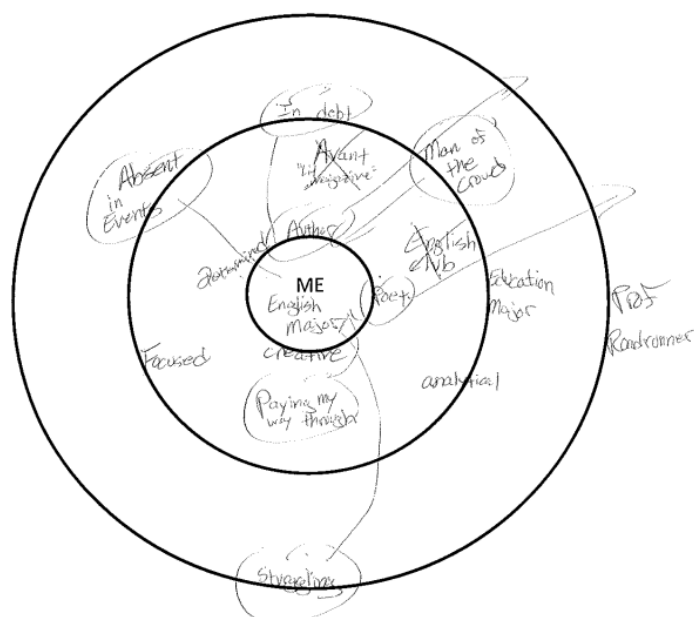


Figure 4. Drew's Relational Map

We felt this technique would be extremely helpful to the students as they explained how their map has changed, in addition to being helpful to me as we worked with the data, providing me with a visual of the map and how it changed over time, rather than having participants discuss it. We decided moving forward to provide this option to students. After "Drew's" interview, seven participants out of the remaining thirteen opted to use this technique.

Once the time frame to complete the map was over, we confirmed with the participants that they were finished and moved onto the interview questions. As part of the first question of the interview protocol, and in alignment with Zhang (2008), we asked each participant to explain, working from the inside out, what he or she wrote in the circles. Having the participants reiterate what they wrote in the relational map circles reduced the risk of misinterpreting findings, contributing to the study's dependability (Zhang, 2008). Once we had a conversation with the participant about what they wrote in their relational map circles, we then moved onto the remainder of the interview protocol questions.

Relational Maps and Theory Development

Although the data sources listed in Table 1 were intended to answer specific research questions, and did indeed serve that purpose, as the study progressed, it also became clear that the relational map aided in answering all of our research questions for several reasons. First, the map and interview questions were designed simultaneously, with questions referencing the map being interwoven to the protocol. This prompted further probing questions that helped participants think about their identity, development, and engagement in more detail and created an in-depth conversational environment for the participant. For instance, as Crilly et al. (2006) have noted, inquiring about what participants wrote on their graphic elicitation activities prompted the participant to provide clarification on an item and can trigger in-depth conversation. Conducting the interviews using this comprehensive method provided us with an understanding of how this group interprets and makes meaning of their experiences at four-year institutions. This intensive form of interviewing contributed to theory generation while addressing overarching research questions (Charmaz, 2006; Creswell, 2013).

Secondly, participants were given a sense of ownership in the study given that they created their maps. Although the template map was researcher generated, it became apparent during the course of the study that participant-crafted contents ultimately drove the interview, adding an element of participant control to the study. Moreover, establishing participant ownership in research lends itself to conducting ethical research, helps the participant become comfortable during the interview, and further reinforces the collaboration of the researcher-participant relationship (Sieber & Tolich, 2013). The initiative Drew took with his map is an indication that although we, as researchers, created this map, this particular graphic elicitation was ultimately a hybrid between a participant and researcher-led tool.

Lastly, the participants' words, and what they specifically wrote on their maps, aided in our theoretical coding. Because participants listed specific words in the circles, based on importance through distance, we were able to clearly develop categories based on the exact words participants used while looking for patterns within the data related to the abstract ideas of identity and development. These "conceptual matters" according to Crilly et al. (2006) can include patterns of "behaviour or organizational structures in addition to the physical world" (2006, p. 348). This prevented the use of general statements and terms that Thygesen et al. (2011) noted before and after their use of a graphic elicitation for their study, enabling us to develop a theory that was truly grounded in detailed, visual data.

Discussion and Limitations

During the course of this study, we were cautious of our role as researchers and worked to address any anticipated limitations to this study, although we acknowledge that, as with any research, this study had limitations that could be addressed in future researchers. As researchers, we approached this study from the perspective of the student, making sure that participants understood the purpose of our research. Furthermore, the use of graphic elicitation introduces limitations including the nature of the researcher-participant relationship impacting the content of the maps, the structure of the map itself, and finally the timeline in which the map was delivered. Perhaps future research, either in the area of CCTSs or through the use of graphic elicitation techniques, could address these limitations.

Rossmann and Rallis (2003) cautioned researchers to be cognizant of the shift in the balance of power between interviewer and interviewee during a study. Given our roles at our current institution, we made sure the CCTSs interviewed as part of this study understood that we were approaching our research from a student perspective. We framed every conversation within the context of being a student. However, there is the possibility that this could have impacted participant responses on the relational maps and during the interviews. For instance, perhaps participants framed their responses in terms of their academics due to our roles at our institution. Although many of the relational map responses closest to the "Me" circle were related to the student's major, this could have been due to participants perceiving this study as academically-focused given our roles at a four-year institution. Crilly et al. (2006) alluded to this notion, and wrote "there is the danger that graphical representations... may be sufficiently persuasive so as to define rather than reflect thinking" (p. 359). However, we offer that not providing any prompts on the maps that could generate certain responses, approaching the study from a student perspective, and asking students to illustrate how their maps have changed provided the flexibility that participants needed to fully express themselves without being confined to strictly academic responses.

Also, although the structure of the map itself could leave room for different interpretations, in the spirit of grounded theory, we left the map structure as unrestricted as possible to permit generation of a variety of ideas. Lack of restriction helps participants to express creativity in graphic elicitation activities (Copeland & Agosto 2012 Varga-Atkins &

O'Brien, 2009; Welkener & Baxter Magola, 2014; Zhang, 2008). This participant creativity contributed to our theory generation and allowed the participant to craft their own reality around identity, development, and engagement as they perceived it (Crilly et al., 2006). Furthermore, this creativity was at the core of our grounded theory approach, contributing to our theoretical rendering based on the data generated by the participant (Charmaz, 2006). However, it could be argued that so many different maps with a lack of prompts could lead to a variety of interpretations of the task. Perhaps in future studies, mechanisms such as word banks or boxes within the circles could be part of the map to help with narrowing in on participant responses and providing general direction to participants. Such changes would continue to distinguish this activity as a more researcher-led diagram, limiting the changes the participant could make on the activity (Umoquit et al., 2013).

Finally, the timing of the relational map activity itself could have impacted the results of the study in two ways: in terms of when activity was administered as part of the interview, and at what point the CCTS completed the map during his or her time at the four-year institution. First, regarding the administering of the map, Crilly et al. (2006) caution that presenting a graphic elicitation activity at the "outset" of a study "may prejudice the interviewees' responses and strongly bias the material collected. However, as this could be considered a limitation, we offer that because our map drove our interview questions, having participants initially complete the map set the stage for the interview. Second, in terms of when the participant completed the map, Thygesen, Pedersen, Kragstrup, Wagner, and Mogensen (2011) took the position that using graphic elicitation techniques generates a "snapshot understanding" of participant experiences based on their experiences at a particular time (p. 605). If this study was conducted longitudinally, for example immediately upon CCTSs' arrival to their four-year institutions and then again upon graduation, perhaps the maps would have generated different results. Having participants fill out the maps over time would further contribute to meaning making, as Baxter Magolda (2009) suggested that meaning making is a progressive process as individuals grow, change, and work through a variety of challenges. Asking in-depth interview questions and having the students indicate how their map would have appeared while attending community college still helps paint a picture of CCTS identity, development, and engagement because they are recalling their past experiences and making reference to their maps. However, as the activity was completed only once, this particular study was indeed only a "snapshot" of CCTSs and their experiences.

Conclusion

It appears that graphic elicitation has not been used to explore CCTS identity, development, and engagement previously, therefore further research is needed in this area. This paper extends upon previous research in that it provides another "illustrative example of graphic elicitation in practice" (Crilly et al., 2006, p. 343), discusses how graphic elicitation can be applied to interviews to build theory, and provides a thorough justification of why we used graphic elicitation with a detailed outline of how we approached this research. This research could be done with a similar participant population, or with a subgroup of students within the CCTS context, such as CCTSs of color or within a particular major, to further understand if and how these students struggle with their identities and make meaning of their experiences at four-year institutions. The relational map activity itself could be used with various populations of college students, helping the students understand their own identities and how they change over the course of time. Moreover, a longitudinal study of CCTSs using the map could chronicle their experiences with identity, development, engagement starting at transfer and through graduation. When looking at the various possibilities, it is clear that this research could be the beginning of further use of graphic elicitation in studies of college

students and other adults in transition generally, and additional research exploring CCTSs specifically.

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