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Is the Medium Really the Message? A Comparison of Face-to-face, Telephone, and Internet Focus Group Venues

June Gothberg
Western Michigan University

Brooks Applegate
Western Michigan University

Patricia Reeves
Western Michigan University

Paula Kohler
Western Michigan University

Linda Thurston
Kansas State University

Lori Peterson
University of Northern Colorado

With increased use of technology in qualitative research, it is important to understand unintended, unanticipated, and unobvious consequences to the data. Using a side-by-side comparison of face-to-face, telephone, and Internet with video focus groups, we examined the yield differences of focus group venue (medium) to the data (message) rendered for 5 variables of interest: participant interactions, breadth of conversation, depth of conversation, disclosure of sensitive information, and adherence to the topic. Our comparison of data raised questions as to the influence of multiple focus group moderators, technical difficulties in the electronic medium, and consequences of non-participant "visitors" or "guests" in the focus group venue. Most importantly, the results suggested different research questions might be more suited to a particular focus group venue.

June Gothberg, Ph.D., is Senior Research Associate at Western Michigan University in Kalamazoo, Michigan.

Brooks Applegate, Ph.D., is Full Professor of Educational Leadership, Technology, and Research at Western Michigan University in Kalamazoo, Michigan.

Patricia Reeves, Ed.D., is Associate Professor of Educational Leadership and Research at Western Michigan University in Kalamazoo, Michigan.

Paula Kohler, Ph.D., is Associate Vice President for Research at Western Michigan University in Kalamazoo, Michigan.

Linda Thurston, Ph.D. is Associate Dean for Research at Kansas State University in Manhattan, Kansas.

Lori Peterson, Ph.D., is Assistant Professor of Special Education at the University of Northern Colorado in Greeley, Colorado.

Correspondence concerning this article should be addressed to june.gothberg@wmich.edu.

McLuan (1964) coined the phrase "the medium is the message" (p. 7) thereby acquainting society with the subconscious changes to interpersonal relationships through the introduction of new inventions or innovations into human affairs. Since that time, social scientists have continued to examine ways that the 'medium' often results in unintended, unanticipated, and unobvious consequences (Federman, 2004). Pivotal in the present study was to understand the consequences of the introduction of technology-based focus group venues (medium) to the nature and characteristics of the data (message).

Researchers report that using focus groups to collect data allows the researcher to gain deeper and richer insights into phenomena (Brown, 1999; Edgar, Freimuth, & Hammond, 2003; Massey, 2010). Moreover, as a data collection strategy, focus groups ground the dynamics of group communication, group process, language, and thought (Marková, 2004). Using a focus group enables researchers to study and understand a particular topic from the perspective of a group of participants rather than from one individual at a time (Wibeck, Dahlgren, & Öberg, 2007). The discussions and debates that often occur in focus groups allow the researcher to observe multiple and partial viewpoints from collective and individual experiences of the phenomenon under investigation (Moyle, 2011). Furthermore, group discussions lend themselves to a 'snowballing effect', where participants build on previous statements that cause the ideas of individual members to pass around the group, where they gather momentum and detail (Blackburn & Stokes, 2000; Piercy, Franz, Donaldson, & Richard, 2011; Stokes & Bergin, 2006). Finally, researchers state that the essential benefit to using a focus group over other data collection tools is the direct interaction with the participants that allows the moderator the ability to clarify ambiguous information, qualify meaning, and probe for greater understanding (Finch & Lewis, 2003).

Traditionally, the term focus group brought to mind a small group that sat around a table in a conference room, roughly the same age and status, who enjoyed snacks, and answered a moderator's questions about topics of interest (Haley, Sheehan, Morrison, & Taylor, 2011). Researchers considered these face-to-face type interviews as a 'gold standard' of qualitative research (Hine, 2005; Lofland & Lofland, 1995; McCoyd & Kerson, 2006). Typically, researchers designed focus groups with all participants and moderators together in one location; i.e. face-to-face. In this venue, researchers generally reported they provided a moderator in the room to facilitate the focus group conversation. The process allowed the moderator and other participants to receive verbal and nonverbal cues, created opportunity for visual stimulus to increase participant understanding and response, facilitated the interplay of group dynamics, and aided the ability to structure ideas from others' comments (Chase & Alvarez, 2000; Klein, Tellefsen, & Herskovitz, 2007; Schneider, Kerwin, Frechtling, & Vivari, 2002). In the past century, however, technology changed the stereotypical focus group and permitted greater flexibility in research design and implementation (Morgan, Fellows, & Guevara, 2008). As the availability of technology rose, the Internet and telephone increased in use as a data collection tool in qualitative research (Iacobucci, 2001; Mann & Stewart, 2000; Nicholas et al., 2010; Oringderff, 2004). Thus, researchers now enjoy an unprecedented smorgasbord of options for implementing focus groups that continue to expand and grow.

The location of the focus group, henceforth referred to as venue, expanded beyond conventional spatial and temporal boundaries (Iacobucci, 2001). The need for mutually shared space and time historically restricted venue options, but new options permitted participation from remote, isolated, or undisclosed locations and, in some research designs, even allowed for asynchronous involvement. Researchers took advantage of these options as shown by the increase in publications that include focus group venues using the telephone and Internet as primary data-gathering options (Mann & Stewart, 2000; Morgan, et al., 2008; Nicholas, et al., 2010; Oringderff, 2004; Poynter, 2010). In some cases, researchers reported using more than one focus group venue in the same study with no discussion of implications or the affects to data content, quality, and integrity (Frazier et al., 2010). However, Graffigna and Bosio (2006) warned that the introduction of these additional venues into the research design had implications with regard to the stimuli used in the data gathering process, to the possibilities for aggregating and analyzing data, and to the way in which the relationships between participants and researcher and researched are structured.

With expanded use of electronic venues to augment the traditional face-to-face focus group approach, only a researcher's knowledge and creativity seem to limit the number of focus group venue options. This shift to electronic focus group venues resulted in a vast increase in the number of published research articles that include groups conducted via telephone conference calls, video conferencing, synchronous online groups with or without video, and

asynchronous online groups. One of the most popular venues explored in recent years are avatar-based focus group venues conducted in online worlds. Researchers who chose avatar-based focus groups reported that the fundamentals of focus groups have not changed except that the data collection is through virtual worlds rather than in person (Smith, Kisiel, & Morrison, 2009).

Even with great interest in these alternate venues, however, the literature showed scant research on their common and specific ability to elicit content from the participants comparable to that obtained through traditional face-to-face venues (Underhill & Olmstead, 2003). In fact, many treated these venues as equal to traditional face-to-face focus groups and used them synonymously and at times interchangeably within the same study. Our extensive literature review confirmed that very few studies examined the idea of equivalence and virtually no side-by-side venue comparisons existed. Thus, the comment made by O'Conner and Madge (2003) that warned researchers to carefully examine their data collection tool is still relevant today: "Work which has been published pays little attention to the disadvantages and drawbacks of the research tool, in particular little attention has focused on carrying out qualitative online research" (p. 133).

Sound practice requires that the research question and research design should ultimately guide how a focus group is constructed and implemented (Onwuegbuzie, Dickinson, Leech, & Zoran, 2010; Tremblay, Hevner, & Berndt, 2010). Long-time focus group expert Morgan (2012) implored researchers to consider the decisions they make in regard to research design due to the interconnection between the research's design and how a group functions: "Although it is up to the participants themselves to initiate and sustain their own discussions, the decisions that we make as researchers can have a major influence on the nature of that discussion" (p. 161). Thus, a researcher must carefully consider the research goals to determine if conducting focus groups is the best data collection tool to use. In the present study, we sought to understand how a particular focus group venue impeded or enhanced a research design by providing an empirical side-by-side comparison of focus group venues. Accordingly, we set up a means to compare the yield from focus group interviews conducted in a face-to-face context versus either telephone or Internet with video.

As shown, researchers choose focus groups due to several appealing characteristics. We opted to study the five most important focus group characteristics as reported and agreed upon in the literature: participant interactions, breadth of conversation, depth of conversation, disclosure of sensitive information, and adherence to the topic. These characteristics distinguished focus groups from other data collection strategies and caused researchers to choose focus groups over other data collection options. We asked the following questions:

1. Do participant interactions in the telephone focus group venue yield as high a usage as interactions in the face-to-face focus group venue? Do participant interactions in synchronous Internet with video focus group venue yield as high a usage as interactions in the face-to-face focus group venue? Do participant interactions in synchronous Internet with video focus group venue yield as high a usage as the interactions in the telephone focus group venue?
2. Does breadth of conversation in the telephone focus group venue yield as high a usage as breadth of conversation in the face-to-face focus group venue? Does breadth of conversation in synchronous Internet with video focus group venue yield as high a usage as breadth of conversation in the face-to-face focus group venue? Does breadth of conversation in synchronous Internet with video focus group venue yield as high a usage as breadth of conversation in the telephone focus group venue?
3. Does depth of conversation in the telephone focus group venue yield as high a usage as depth of conversation in the face-to-face focus group venue? Does depth of conversation in synchronous Internet with video focus group venue yield as high a usage as depth of conversation in the face-to-face focus group venue? Does depth of conversation in synchronous Internet with video focus group venue yield as high a usage as depth of conversation in the telephone focus group venue?

4. Does disclosure of sensitive information in the telephone focus group venue yield as high a usage as disclosure in the face-to-face focus group venue? Does disclosure of sensitive information in synchronous Internet with video focus group venue yield as high a usage as disclosure in the face-to-face focus group venue? Does disclosure of sensitive information in synchronous Internet with video focus group venue yield as high a usage as disclosure in the telephone focus group venue?
5. Does adherence to the topic in the telephone focus group venue yield as high a usage as adherence in the face-to-face focus group venue? Does adherence to the topic in synchronous Internet with video focus group venue yield as high a usage as adherence in the face-to-face focus group venue? Does adherence to the topic in synchronous Internet with video focus group venue yield as high a usage as adherence in the telephone focus group venue?

Method

Currently, there are a number of reported approaches for analyzing qualitative data; however, to date there is no single framework that delineates the types of qualitative analysis techniques available for focus group analysis (Onwuegbuzie, et al., 2010). In fact, recently published textbooks claimed that data analysis in qualitative research remains somewhat of a mystery (Marshall & Rossman, 2006). To illustrate, Green and Thorogood (2004) found that, in practice, most researchers used a combination of approaches.

How researchers chose their focus group data analysis often went back to such decisions as researcher paradigm and research design. Much as the qualitative researchers ranged across paradigms, so then did analysis. Marshall and Rossman (2011) offered the idea of a qualitative analytic continuum where the far left showed a prefigured technical quasi-statistical approach to analysis and the far right demonstrated an emergent intuitive immersion technique. Onwuegbusie, et al. (2010) suggested four analytical techniques that lend themselves to focus group data: constant comparison analysis, classical content analysis, keywords-in-context, and discourse analysis. We adopted two of these techniques: classical content analysis and discourse analysis in the form of linguistic analysis.

To make our comparison, we established criteria to interpret whether or not the two selected nontraditional focus group venues yielded as high a usage as the established face-to-face focus group venue. We ruled out inductive data analysis approaches to derive in vivo patterns in the data of these focus groups, as this type of analysis would not provide a distinct frame for side-by-side comparison. In addition, even though we had sufficient data sets from each focus group venue to compare any varying patterns of themes and sub-themes derived from each venue, we rejected a thematic analysis, as it would not allow us to draw any conclusions about the comparative strengths and weaknesses of collecting data through these different venues. Thus, to create a basis to make a side-by-side comparison of data derived from all three venues in terms of focus group qualities, we selected two highly deductive analysis frames to establish the basis for comparing the yield from the three venues. We selected one frame based on general characteristics of data richness and borrowed the other frame from the field of linguistics.

Unit of Analysis

Some researchers who used focus groups for data collection suggested focusing on one measurement level or unit of analysis: the aggregated dataset of all focus groups conducted for a study or subgroups within the focus group study (Onwuegbuzie et al., 2010). However, some researchers argued that responses in a focus group are interdependent due to lack of response from some participants and group pressure from others, making the group itself the unit of analysis (Fern, 2001). Conversely, others attested to the need for careful consideration to the fact that focus group discussions are the product of individuals nested within the group (Hennink, 2007). Along this line, Morgan (1997) went so far as to state there is no independence, but rather interplay between these two levels of analysis: "Neither the individual nor the group constitutes a separate unit of analysis" (p. 60). To measure the variables of interest to this study, we located the unit of

analysis at the level of focus group (N = 18), which allowed the comparison of focus group venues.

Extant Data

We used extant data derived from a summative evaluation project conducted by the National Secondary Transition Technical Assistance Center (NSTTAC) funded by the U.S. Department of Education's Office of Special Education Programs (OSEP) (Award #H326J050004). NSTTAC conducted 18 focus groups with students who participated in self-determination curriculum to evaluate their impact on educational practice, student learning, and outcomes. The evaluation included focus groups using three different venues: face-to-face, telephone, and Internet video-based. We used the de-identified, pre-existing data to compare the yield from focus group interviews. NSTTAC controlled the evaluation design and implementation including instrument development, field-testing, sampling procedures, implementation, data collection, transcription, and original analysis. The transcriptionist deleted all identifying information from the original to create an anonymous dataset for the current project. The specifics of the original study are included in detail here to allow examination within the framework of the current project.

NSTTAC Participants

NSTTAC provided self-determination workshops to over 120 high schools and middle schools in four states. They determined transition-aged students (ages 16-21) would provide the most information to analyze the effectiveness of the curriculum; therefore, the evaluation was limited to high school special education students. Sampling students in special education can prove especially problematic in regards to limited cases and privacy issues (Mertens & Adams McLaughlin, 2004). Thus, NSTTAC used their school connections to assist with a purposeful sampling of critical cases (Patton, 2002).

To participate in a focus group, the student was required to (a) have the ability to understand and process questions, (b) have the ability to communicate answers, (c) have the stamina to participate in a 45-minute focus group, (d) have participated in self-determination curricula or lessons as part of his or her special education program, and (e) have a current individualized education program (IEP). Students who disclosed had a wide range of school-assigned disability labels including autism spectrum disorder, emotionally impaired, hearing impaired, intellectual disability, otherwise health impaired, physical disability, specific learning disability, and traumatic brain injury. From the reported disability categories, we garnered that although study participants carried a special education label, only 8% were identified as having lower than normal IQs.

Table 1 provides the demographic characteristics of participants by focus group venue for gender and high school grade. Overall participation favored males (53%, N = 34) over females (47%, N = 30), which closely mirrored the general population, where males are referred to special education services at a slightly higher rate than females (Wehmeyer & Schwartz, 2001). The majority of students that participated in the focus groups ranged from grades 10 – 12 (95%). With most states providing special education services until age 21, this placed the participants between 16 and 21 years of age.

NSTTAC Focus Group Instrumentation

All members involved in the focus groups understood the content and expectations of participation in a self-determination course, as indicated by their role in special education. NSTTAC project directors and evaluation team members jointly created a focus group interview protocol. The team identified four evaluation areas: student learning, student participation in the IEP, student behavior and attitude change, and student reflections and recommendations.

NSTTAC Evaluation Checklist

To ensure the integrity of the population under study, NSTTAC implemented the Universal Design for Evaluation (UDE) Checklist (Sullivan, Sulewski & Gothberg, 2012). Researchers report that checklists improve compliance, processes, data acquisition, outcomes, and in the medical field, saved lives (Gaffney, Harden, & Seddon, 2005; Gawande, 2009; Good, 2006; Henderson, Fung, Bhatt, & Bdesha, 2012; Varela & Brunt, 2012). Martz (2010) deemed checklists

Table 1
Descriptive Statistics for Gender and Grade by Venue and Replicate (n = 64)

Gender	Face-to-face		Telephone		Internet		Subtotal	
	n	**(%)**	**n**	**(%)**	**n**	**(%)**	**n**	**(%)**
Female	12	(19)	9	(14)	9	(14)	30	(45)
Male	9	(14)	9	(14)	16	(25)	34	(55)
Total	21	(33)	18	(28)	25	(39)	64	(100)
Grade								
9th	1	(2)	1	(2)	0	(0)	2	(4)
10th	7	(13)	5	(9)	4	(7)	16	(29)
11th	4	(7)	6	(11	7	(13)	17	(31)
12th	5	(9)	6	(11)	8	(15)	19	(35)
Grad	0	(0)	0	(0)	1	(2)	1	(2)
Total	17	(31)	18	(33)	20	(36)	55	(100)

Note: Grade missing = 9

to be a sound evaluation guide: "Checklists provide guidance for the collection of relevant evidence used to determine the merit, worth, or significance of an evaluand" (p. 215). The UDE Checklist assisted NSTTAC to include people of all ages and abilities by using the seven principles of Universal Design: equitable use, flexible in use, simple and intuitive, perceptible information, low tolerance for error, low physical effort, and size and space for approach and use (Story, 2010). The checklist helped the evaluation team design, develop, and implement the focus group data collection in an accessible and inclusive manner that resulted in an evaluation that claimed a 98% participation rate.

NSTTAC Focus Group Procedures

NSTTAC choose moderators experienced with working with people with disabilities, who understood self-determination concepts, and who understood the intended student outcomes. In addition to knowing the content, NSTTAC selected moderators with traits that would build rapport and trust in the students. The team decided that a moderator could be an employee of the district, excluding classroom teachers, building administrators, and paraprofessionals who might work daily with a student, thus potentially making the student uncomfortable with sharing their true perceptions. NSTTAC did not provide formal moderator training; however, NSTTAC gave moderators the standard protocol in advance along with standardized

probes for each question and asked moderators to follow the script verbatim. Prior to the focus group, NSTTAC team members followed up with moderators through email and telephone to ensure understanding and answer questions. The team expected moderators to ask questions in numeric order and to use the scripted probes when needed to gain clarity from the students.

One week prior to conducting a focus group, NSTTAC conducted a test of the telephones and computers used in the focus groups. The evaluation design called for students to be in different locations for telephone and Internet focus groups. In a couple of instances, this arrangement was not possible with a limited number of school-based options. Thus, for some of the groups all of the students were in separate locations while in other groups the school divided students between all possible locations.

In a few focus groups, 'guests' attended the session to assist with technology, translation, interpretation, and in one instance to support good student behavior. Moderators came prepared to share the restrictions in which these guests were welcome. Moderators asked guests to translate word-for-word what the moderator and participant said and to hold personal opinions so as not to interrupt the flow of conversation. In the case of technology support, the support person left the room during the focus group unless a technical problem occurred.

Moderators began focus group sessions with an introduction that explained student selection, how NSTTAC planned to use the data, and student identity protection. To provide context, moderators asked students to recall the self-determination course and the teacher who taught it. NSTTAC provided moderators with this information in the event that students needed prompting to remember. This process was to ascertain that students actually participated in the course and that they remembered participating in the course. At this point, moderators informed participants of the audio recording and moderators led discussions from the standard protocol. At the end of each focus group session, moderators asked students to share any important information not addressed by the standard protocol.

Current Study

In the original evaluation, NSTTAC employed two professional transcriptionists to transcribe audio and videotaped focus groups in the traditional verbatim style. NSTTAC made these available for our study. To run the linguistic portion of the analysis, we cleaned the de-identified transcripts. We updated the transcripts to avoid abbreviations (e.g., U.S., P.E.), acronyms (e.g., IEP, sped), dates (e.g., 3-13, Jan 4), numerals (e.g., 4/15/12, 5 minutes), slang (e.g., gotta, 'cause), nonfluencies (huh? um, uh), and filler words (e.g., you know, I mean). In addition, we corrected punctuations and eliminated sidebar notes and transcriber time stamps.

Variables

We adopted the three independent variables from the original evaluation: focus group location, gender of participants, and focus group venue (see Table 2). NSTTAC wanted to inform the field beyond the setting in which it was collected. Research reported that a lack of geographic diversity could affect the generalizability of the research results (Abrams, 2010; Bickman & Rog, 2009; Fern, 2001). Thus, to maximize the usefulness of the findings to other settings, the original evaluation design included 18 focus groups equally divided between three states: Arkansas (N = 6), Colorado (N = 6), and Oklahoma (N = 6). The literature also showed evidence of gender bias in homogenous and heterogeneous group data collection (Brown, 2004; Fern, 2001; Hollander, 2004; Petronio, 2002; Stewart, Shamdasani, & Rook, 2007). To address this potential bias, NSTTAC controlled the gender mixture of the focus group participants by including an equal number of all male (N = 6), all female (N = 6), and mixed gender groups (N = 6). Finally, and crucial to our study as the chief variable of interest, focus group venue was equally distributed between face-to-face groups (N = 6), telephone groups (n = 6), and Internet with video groups (N = 6).

Methods of Inquiry

We performed a secondary analysis of the extant data. The original evaluation by Kohler, Gothberg, Coyle, and Peterson (2011) examined curriculum implementation by evaluating

a practice to determine the effectiveness of the practice and to provide information for decision-makers. This process provided the foundation for us to examine differences in responses based on focus group venue. It also provided the context for measuring the five variables of interest. In particular, focus group questions invited students to disclose sensitive information regarding their disability. All 18 focus groups used identical protocols, were audio recorded, and professionally transcribed.

Preliminary data analysis used content and linguistic analysis. The first round of data analysis required us to hand code the data for markers related to the five research questions. To help triangulate the findings, we used Linguistic Inquiry and Word Count 2007 (LIWC) software to conduct a second round of data analysis. LIWC is externally validated text analysis software that calculates the degree to which people use different categories of words across a wide array of texts. Psychologists designed LIWC to gauge the linguistic expression of emotions in texts and a range of genres, especially conversation (Pennebaker & Francis, 1999).

The lens used in our analysis was Social Penetration Theory, which explains the evolution of personal relationships, trust, and self-disclosure. The theory explains that as trust builds in a relationship, a person will disclose more about himself or herself, especially regarding personal and intimate details, including any behavior that is interpersonal—verbal, nonverbal, or environmental—that affects relationship development (Sprecher, Wenzel, & Harvey, 2008). Social Penetration Theory is often referred to as the "onion theory" of personality, with layers of a person peeled away as time passes and intimacy grows to reveal the inner person (Baack, Fogliasso, & Harris, 2000).

We used content analysis to measure participant interactions (RQ1), breadth of conversation (RQ2), disclosure of sensitive information (RQ4), and adherence to the topic (RQ5). After creating operational definitions, we used linguistic analysis to analyze participant interactions (RQ1), depth of conversation (RQ3), and disclosure of sensitive information (RQ4). This format allowed us to measure RQ1 and RQ4 using both content and linguistic analysis, thus providing an approach to triangulate the data.

Validity and Reliability

Qualitative researchers need to concern themselves with issues of validity and reliability while designing a study, analyzing results, and judging the quality of the study (Patton, 2002). Internal validity is the degree to which research findings match reality, truthfulness, and the credibility of the findings (Lewis, 2009). To address this quest, we triangulated our analysis and used content analysis and linguistic analysis to analyze our data. We used multiple coders and measured the agreement between them to ensure reliability. Specifically for RQ4, we assigned three coders to determine if participants disclosed information on the six sensitive questions. If participants chose to answer a sensitive question, the coders gave a score of one and if they chose not to, the coders gave a score of zero. Intercoder reliability was calculated using ReCal3 or three or more coders. Intercoder reliability scored between .82-.94, well above an acceptable range.

Table 2
Focus Group Study Design

	Face-to-face	Telephone	Internet with video
Colorado	Male	Mixed	Female
New Mexico	Female	Male	Mixed
Oklahoma	Mixed	Female	Male

Participant Interaction

Although focus groups are a form of interviewing, the source of data is the interactions between participants (Morgan, 2012). Researchers reported interaction as the most important characteristic of focus group studies that differentiate them from other data collection tools, and some researchers regard interaction as the most important feature of a successful focus group (Gill, Stewart, Treasure, & Chadwick, 2008; Grønkjaer, Curtis, de Crespigny, & Delmar, 2011; Hemsley, Balandin, & Togher, 2008; Ho, 2006). The hallmark of focus groups is their explicit use of group interaction to produce data and insights that would be less accessible without the interaction found by focusing with a group of participants (Morgan, 1997). Finch and Lewis (2003) provided a description of how this back and forth discussion process clarifies responses:

> Participants ask questions of each other, seek clarification, comment on what they have heard, and prompt others to reveal more. As the discussion progresses (backwards and forwards, round and round the group), the individual response becomes sharpened and refined, and moves to a deeper and more considered level. (p. 171)

Furthermore, researchers stated that what made a focus group unique as a data collection tool was the ability to generate data by capitalizing on the interactions that only happen in groups (Green, Draper, & Dowler, 2003; Stewart et al., 2007). This interactive environment allowed participants to ponder, reflect, and listen to experiences and opinions of others and to compare their realities to those of others (Krueger & Casey, 2009). Thus, the described purpose of a focus group was to encourage interactions among and between participants, in order to elicit a range of views and generate rich discussion (Payne, 2007). Researchers considered the ability for interaction generation to be fundamental to focus groups and, for many, the most important aspect of this data collection tool. Berry and Landry (1997) offered a definition of participant-to-participant interaction as back and forth actions of listening and response:

> An interaction occurs when you and at least one other person pay attention to one another and adjust your behavior to one another. A conversation is the clearest example of an interaction. Person A says something. Person B responds, and so forth. (p. 272)

As such, we analyzed research question one (RQ1) using content analysis (PI_C) to identify and code participant-to-participant interactions for each focus group.

We further analyzed RQ1 with linguistic analysis (PI_L) using linguistic markers identified as social interactions found in Social Penetration. Linguistic analysis allowed us to explore patterns in language through a computer-based analysis. These patterns provided rich tools for studying interactions, because participants interplayed so much through the language exchanged (Tausczik & Pennebaker, 2010).

Breadth of Conversation

One of the essential qualities of using focus groups for data collection is the ability to elicit detailed conversations and assist the researcher in a full understanding of the study focus. Thus, for research question two (RQ2), we analyzed breadth of conversation (BRD), the coverage of information across essential areas of interest (Ritchie & Lewis, 2003). From the field of social penetration, BRD relates to the quantity of information as examined by category or frequency. This may also be referred to as topical coverage (Schwartz, Sadler, Sonnert, & Tai, 2008). If a researcher is interested in revealing the range of perspectives or diversity of opinions on an issue, breadth of conversation will be a variable to prioritize. As the literature revealed no clear linguistic markers for breadth of conversation, we only analyzed RQ2 through content analysis to discover the range of topics explored by identifying and coding each topic covered by a focus group.

Depth of Conversation

We examined depth of conversation (DPTH) as research question three (RQ3). DPTH is the range of information shared, including core values and beliefs beyond surface level (Schwartz, et al., 2008). Conversations can vary in depth and complexity (Tausczik & Pennebaker, 2010). Depth can range from surface level information in which a participant only shares demographic information to deeper aspects of core

values and beliefs (Houghton & Joinson, 2012). The original authors of Social Penetration Theory compared DPTH to the layers of an onion, with real depth being those inner layers that may bring tears to your eyes (Altman & Taylor, 1987). Although focus group participants may add a lot of surface level information or breadth, it is often harder for a moderator to gain enough trust in one meeting to uncover the inner layers of the onion, or depth. Because analyzing depth through a full content analysis is exceedingly difficult, we used linguistic markers to analyze depth of conversation. Linguistic markers identified for measuring conversational depth include prepositional phrases, exclusives, conjunctions, and the cognitive words a participant used (Hirsh & Peterson, 2009; Houghton & Joinson, 2012; Pennebaker & Graybeal, 2001; Tausczik & Pennebaker, 2010).

Disclosure of Sensitive Information

A fourth characteristic of focus groups (RQ4) is the ability to facilitate the collection of data about sensitive topics (Wutich, Lant, White, Larson, & Gartin, 2010). Self-disclosure has a long history as a variable of interest to researchers (Greene, Derlega, & Mathews, 2006). However, in Chelune (1979), warned that self-disclosure was difficult to measure due to its complexity and the general disagreement over its definition, and researchers still struggle with that measurement today (Houghton & Joinson, 2012). More recently, researchers found that self-disclosure provided catharsis, increased social control, and validated perspectives in relational settings (Petronio, 2002). As such, we analyzed disclosure of sensitive information (DIS_C) as a variable of interest in our study of focus group conversations. We defined disclosure of sensitive information as the act of revealing private information (thoughts, feelings, and experiences) to others (Dindia, 2000) and consequently, demanded a certain degree of trust, risk, and vulnerability (Kjeldskov, et al., 2004).

Researchers reported intentionally using focus groups to solicit disclosure of sensitive information (Miles & Gilbert, 2005). Studies showed smaller focus groups are most successful at collecting information of a sensitive nature (Bloor, Frankland, Thomas, & Robson, 2001). The groups in this study ranged from three to seven participants. The participants were 16-21 years of age, and researchers reported this age range disclosed sensitive personal information in focus groups with their peers as compared to other age groups (Oliveira, 2009). However, depending on the perceived consequences, researchers found participants disclosed or withheld information only after weighing the benefits and risks (Miles & Gilbert, 2005). Risks included giving information to the wrong people, sharing information at inappropriate times, and giving too much information (Gerber & Price, 2012). Moderators asked six questions to participants that revealed sensitive information: (1) disclosure of disability, (2) effects of disability, (3) disclosure of need for accommodations, (4) disclosure of personal accommodations needed, (5) disclosure of changes in attitudes and behavior, and (6) disclosure of personal stories. These questions collectively represented the disclosure of sensitive information. Hence, the more of these questions participants opted to answer, the greater the DIS_C.

Linguistic analysis provided us an additional measure for this variable of interest, disclosure of sensitive information (DSC_L). In their study on secrets, Houghton and Joinson (2012) identified 16 linguistic markers relating to sensitive self-disclosure. These markers included (a) personal pronouns; (b) social words used to describe relationships; (c) affective processes showing emotion; (d) cognitive processes in which the participant illustrates cause and effect; (e) perceptual processes; (f) biological processes; (g) relativity; and (h) personal concerns of dealing with work, leisure activities, personal achievements, home, money, religion, and death (Bantum & Owen, 2009; Hirsh & Peterson, 2009; Houghton & Joinson, 2012; Joinson & Paine, 2007; Newton, Kramer, & McIntosh, 2009; Spiekermann, Grossklags, & Berendt, 2001). Analysis for DSC_L in our study was limited to the default LIWC 2007 dictionary.

Adherence to the Topic

We experienced previous studies that showed a difference in on- and off-topic conversations between venues. At times, it was difficult for the moderator to bring participants back to focus questions, thus limiting the utility. Off-topic conversation, by virtue of its name, does not address the topic in which a moderator

asked participants to engage (Cade, Lehman, & Olney, 2010). Therefore, we considered it important to assess topic adherence as research question five (RQ5). For this purpose, the researcher content analyzed each line of text as either on-topic (ONT) or off-topic (OFFT), as in the following example:

> Moderator: Please describe a time you told someone about your disability.
> Participant 1: Since taking this class, I told my boyfriend (ONT)
> Moderator: You mean he didn't already know?
> Participant 2: Brandy doesn't tell him about a lot of thing (OFFT)
> Participant 3: Yeah, remember the time we went to the beach? (OFFT)
> Participant 1: Uh and like he found out, he was so mad (OFFT)
> Participant 3: I can't believe he didn't break up (OFFT)
> Moderator: Brandy, how did he react when you told him about your disability?

Note that moderator's verbalizations are not included in this coding framework as we assumed moderators steered the conversation, and therefore stayed on-topic.

Results

Our analysis of the transcripts confirms that a researcher needs to consider what focus group venue aligns with the research questions and design (Onwuegbuzie et al., 2010; Tremblay et al., 2010). No single focus group venue stood out as a best fit for all research questions. Moreover, while running multiple analyses was time consuming, we found adding the LIWC analysis helped triangulate and confirm our findings.

Research Question 1

We examined participant interactions during the focus group venues and used content analysis and linguistic analysis approaches. Both analyses revealed differences in participant interactivity when comparing telephone with face-to-face focus group venues. When looking for content or linguistic markers of participant-to-participant interaction in all three venues, we found diminished yield in the telephone venues as compared to the face-to-face venues. We found a similar lower yield of content and linguistic markers on participant interactivity when comparing the Internet with video to the face-to-face focus group venues; however, we discovered no apparent yield differences between telephone and Internet with video.

Table 3 shows the count of linguistic markers associated with participant interactions by venue, the average count of content analysis markers found for participant interactions by group, and typical interactions we observed when we used each of the three venues. As Table 3 illustrates, we detected a higher pace of participant-to-participant interactions as compared with moderator-to-participant interactions in the face-to-face focus group venue. In the telephone venue, we found moderators prompted more and often needed to call on participants by name to give answers.

In the Internet with video focus group venue, we observed mixed results from the analysis of linguistic markers and content analysis. Linguistic analysis perceived 52 markers related to rich participant interaction in the telephone venue, while Internet with video showed 50 markers, putting the two venues near equal. However, for content analysis we observed a greater difference with an average of 30 participant-to-participant interactions per telephone venue as compared to 38 for Internet with video. Therefore, while moderators spoke more often in the Internet with video focus group venue than in the face-to-face, they did not need to prompt and call on participants as often as the telephone venue. However, linguistic analysis indicated that less markers indicating actual interactions was greater in the telephone venue than in the Internet with video.

Research Question 2

We examined RQ2, breadth of conversation using only content analysis, as our literature review uncovered no specific linguistic markers to use for a linguistic analysis. We content analyzed each focus group and determined if venue affects the breadth of topics that participants discussed. Results ranged from focus groups discussing 7 topics to others discussing over 20 topics during one focus group session. However, these variances occurred within venues as well as between venues with no clear distinction of venue differences. For example, one face-to-face focus group only discussed 7 topics

Table 3
Counts of Linguistic Markers, Content Analysis, and Example Dialog of Participant Interactions

Venue	Linguistic	Content analysis	Example dialog flow
Face-to-face	69.27	43.17	Moderator: So, how do you …
			P1: Talking about it …
			P2: I was doing …
			P3: Telling, …
			P1: No, I …
			P2: Case manager…
			P3: Yeah, case manager, …
			P2: I went and …
			P1: I agree, uh, meeting…
			Moderator: Okay…
Telephone	52.33	30.00	Moderator: Can you give me an example
			P1: Yeah, this is …
			Moderator: And what was
			P1: They were like …
			Moderator: P2, How about you? …
			P2: I don't really …
			Moderator: Can you think of any…
			P2: I tell …
			Moderator: And how…
			P2: They are …
			Moderator: Okay. P3, How about you?
Internet	49.86	37.67	Moderator: Did you all learn …
			P2: What?
			Moderator: Did you…
			P2: Yeah, like …
			P1: Yeah
			P3: I was going say we …
			Moderator: Okay
			P3: D1, Specific…
			P1: D1, D2, D3…
			Moderator: So, it sounds like …
			P4: About my …
			Moderator : What?
			P2: What I…

while another face-to-face group discussed 12 different topics. We observed the same phenomenon in telephone and Internet with video focus group venues. Based on our content analysis, we concluded that focus group venue does not systematically affect the breadth of conversation.

Research Question 3

We examined RQ3, depth of conversation using only linguistic analysis. The literature identified linguistic markers associated with depth as prepositional phrases, conjunctions, exclusions, and cognitive mechanical words. Using LIWC software to examine these markers, we found that telephone and Internet with video focus group venues appear to yield as high a usage as the face-to-face focus group venue for achieving depth. The number of words in the LIWC dictionary ascribed as markers indicating a deep level of information shared by participants allowed us to see that there were very small differences between the depth of telephone and face-to-face focus group venues, with 40 linguistic markers found for face-to-face and 42 for telephone focus group venues. However, the analysis only yielded 32 markers of depth of conversation for Internet with video, leading to the conclusion that the Internet with video focus group venue may impose limitations compared to the other two venues for depth of conversation as interpreted through linguistic markers.

Research Question 4

For RQ4, both content and linguistic analysis showed differences in yield for disclosure of sensitive information between venues with participants disclosing at a much higher rate through the telephone focus group venue as compared to the face-to-face focus group venue. The moderators asked students six highly sensitive questions relating to their disability. The content analysis showed that most students shared answers to five or more of those questions in the telephone setting. Students showed more apprehension in the Internet with video where most students opted to answer only four questions and even more in the face-to-face focus group setting where some students decided not to answer any questions and most only answered three of them. Linguistic analysis demonstrated the same pattern for markers of sensitivity with 13 fewer markers appearing in the Internet with video as compared to telephone focus group venue and an even greater gap with face-to-face yielding 23 fewer markers than Internet with video.

Research Question 5

Finally, our analysis of RQ5, adherence to the topic, showed few yield differences between focus group venues, with face-to-face slightly more on-topic than the other two venues. Results ranged from only one off-topic line to six off-topic lines during a single focus group session. With a few hundred lines of text per focus group, we found one to six lines of off-topic texts as insignificant. Based on our content analysis, we conclude that focus group venue does not noticeably influence the adherence to the topic.

Discussion

In summary, focus groups are useful data collection tools for research projects designed to collect data in a group setting. In particular, the five variables we studied play critical roles in making focus groups a valuable tool to researchers: participant interactions, breadth of conversation, depth of conversation, disclosure of sensitive information, and adherence to a topic. As shown, several variables respond differently and independently in each of the focus group venues. The traditional face-to-face focus group venue holds as the preeminent venue in the area of participant interactions. Furthermore, the telephone focus group venue appears to stifle interactions and be much more dependent on the moderator to create conversation. Thus, if a researcher determines that the research goals are dependent on collecting data through participant-to-participant interactions, our study suggests using a face-to-face focus group venue.

For other variables of interest, the face-to-face focus group venue did not prove itself as a superior venue. In fact, the telephone focus group venue proved slightly more effective than face-to-face focus group venues to gain depth of conversation and surpassed face-to-face focus group venues for research projects whose goal is to extract information about sensitive topics.

Moreover, the results suggest the more anonymous the venue, the greater the disclosure of sensitive information. Hence, a telephone focus group seems well-matched for sensitive topics.

Finally, the Internet with video focus group venue did not stand out as a clear choice for any of the variables of interest (see Table 4). Although the Internet with video focus group venue may provide a viable option as compared to face-to-face and telephone focus group venues when the researcher needs to explore breadth or when adhering to the topic, the other two venues proved just as suitable for these variables. However, the Internet with video was a second choice to face-to-face for participant interactions and to telephone for disclosure of sensitive information. Based on the results, a researcher needs to consider the research question and design to guide how a focus group is constructed (Onwuegbuzie et al., 2010; Tremblay et al., 2010).

Implications

This study illustrates a critical complexity in conducting large national qualitative studies where researchers employ multiple researchers or focus group moderators and multiple focus group venues. Such studies usually feed directly into both state and federal policy and funding decisions, and study clients or funders expect research teams to employ extensive design features that establish a high degree of trustworthiness for the data and for the analysis of that data despite the variability associated with conducting research in multiple contexts. In a national education based study, each state and each school entity within that state can introduce virtually unlimited variables. Where a researcher employs qualitative data collection methods, variability can also be associated with the lack of standardization with regard to instrumentation.

In qualitative studies, the researcher or the researcher's surrogate is the instrument of data collection. As the instrument of data collection, the researcher (or the researcher's surrogate) interacts directly with study participants. This interaction is a critical place where the researcher needs to pay attention to any and all means of balancing the importance of data richness with the importance of data credibility and dependability. Without the credibility and dependability associated with a well-planned and managed series of researcher-participant interactions, the utility of the data becomes suspect regardless of how rich it may seem. With multiple researchers and researcher surrogates (as seen in this study employing multiple focus group moderators), credibility and dependability can be quickly compromised by meaningful

Table 4
Comparison of Yield Differences by Venue for Content (CA) and Linguistic Analysis (LA)

	Interactions		Breadth	Depth	Disclosure		Adherence
	CA	LA	LA	CA	CA	LA	CA
Face-to-face	H	H	*	H	L	L	*
Telephone	L	M	*	H	H	H	*
Internet	M	M	*	L	M	M	*

*H = high yield, M = moderate yield, L = low yield, and * = no apparent differences*

differences in how the researcher interacts with and facilitates the conversation with the focus group participants.

Since multiple researchers may employ multiple surrogates in the form of data collectors, several issues of concern emerged out of our qualitative study. First, preparation of data collectors is of paramount concern. A good field test of the data collection methods and procedures could yield a set of understandings about the nature of working with a given population to examine a given set of research questions within a given venue for data collection. From the field test, researchers can determine what conditions the data collectors (in the case of the present study, the focus group moderators) are likely to encounter and develop a set of parameters and guidelines for data collectors to follow. The research team can also create an opportunity within a field test for data collectors to work on inter-rater reliability related to the way they conduct the focus groups (e.g., wait time, probes, redirects, etc.).

A second area of concern is the likelihood that both predictable and unforeseen technical interferences can occur in the conduct of focus groups. A single researcher can use a combination of reflecting and memoing to keep track of these interferences as they occur and map out a consistent way to respond. While separate researchers or surrogate moderators can do the same thing, large studies can start with more standardized data collection processes, but end up with great divergence as each individual moderator (data collector) learns and adapts to the conditions they are experiencing. A consideration for addressing both random and predictable technical difficulties in collecting focus group data using multiple moderators spread across a large geographical area would be to address the predictable technical difficulties in the preparation of moderators and to set up a system for collecting technical difficulty information from the active moderators throughout the conduct of the study. By collecting actual data about both predicted and random technical difficulties as the study unfolds, the core research team can set up regular debriefing sessions to monitor and manage the technical aspects of the data collection process.

A third area of concern with large national qualitative studies occurs as data is prepared for transcription. Even in cases where there is a single transcriptionist or small team of transcriptionists, standards and procedures for transcribing both the content of the focus group conversations and the background information associated with each focus group experience (setting, time, participation, technical problems, environmental or contextual circumstances, etc.) can avoid the loss of important contextual data that may have implications for the analysis and interpretation of the actual content of the data. Moreover, when using computer assisted data analysis programs, certain characteristics of the transcription text may cause complications with the functionality of the software. Again, a field test process that spans the full cycle of moderator preparation, data collection, transcription, and data analysis can catch problems that will diminish the integrity and credibility of the data and assist the research team in refining the study design in order to minimize the denigration of the data and thus the utility of the findings.

A fourth area of concern emerged around the central focus of this study; i.e., the evidence that there may be issues of varying data quality associated with collecting focus group data in electronic versus face-to-face venues. The present study looked at the evidence that there may be one electronic venue that provides a higher quality of data than another does (specifically telephone versus Internet with video) when collecting focus group data within a large national study with multiple focus group moderators. The results of this study revealed that some characteristics of the three venues do not behave equally. Moreover, the results of this study suggest that there may be issues of inferiority or superiority associated with some characteristics of data from each of the three venues. A researcher needs to consider the research objectives and questions to select the appropriate venue for a particular study. In addition, a researcher must consider the implications to yield before mixing multiple venues within a single study. A field test or pilot data collection and analysis may reveal the extent to which the venue or mixing of venues may influence the yield for an individual study or research question. The research team may then adjust the design to maximize yield and minimize venue effects.

Limitations & Future Research

Several limitations affected this study. First, we used extant data and had no control over the original design. The extant data limited the population characteristics to special education students. Although the majority of participants were student with normal IQs, depending on their disability, the type of venue may have influenced their responses. In addition, some groups experienced guest helpers, who may have also influenced the data. Furthermore, the transcripts did not provide details of technical difficulties encountered or moderator notes. In one focus group, data was lost due to a voice activated audio recorder that missed the first few words a participant spoke. Finally, we experienced limitations due to issues from focus groups conducted by multiple moderators and a few focus groups experienced 'guests' as noted in the focus group procedures.

We utilized two highly deductive analysis frames for this study to compare the yield from extant focus group data conducted in three different venues (face-to-face, telephone, and Internet with video). The comparison of data derived from the three different focus group venues raises questions about the influence of using multiple focus group moderators, experiencing technical difficulties in the use of electronic media, and dealing with non-participant "visitors" or "guests" in the focus group venue.

Multiple Focus Group Moderators

Multiple moderators conducted these focus groups. In analyzing the data, it appeared some focus groups might have experienced deeper probing from the moderators to elicit answers. However, we had no means to untangle how the moderator may have influenced the yield from the data. We recommend future studies control for moderator effects and provide comprehensive training to ensure fidelity of implementation. Moderators would also benefit from training on a standardized method for dealing with focus groups and, specifically, how to appropriately include a guest in the focus group. Finally, we recommend limiting the number of moderators who conduct focus groups for any one study or study phase.

Technical Difficulties

The transcripts made it clear to us that several focus groups experienced technical difficulties. We were unable to determine to what degree technical difficulties changed the data. It appeared from moderator dialog that it was difficult to remove someone assigned to provide technical support during the focus group. This limitation seemed especially pronounced in the situation where a student was accessing the focus group through technology owned by a teacher or administrator. We recommend that if a researcher plans to include technical data collection tools, a plan for addressing technical difficulties should be included in the research design. In addition, we advise an exploration of ethics in technology based venues. Greenbaum (2008) suggested the idea of increased security of non-face-to-face venues, to address the issue of an unknown person attending the focus group in an environment where you do not see others and, therefore, may not know who is listening.

Non-participant Visitors or Guests

In a few focus groups 'guests' attended the session to assist with technology, translation, or interpretation and in one instance to support good student behavior. Again, it was difficult for us to assess what impact these guest had on the data. We recommend addressing these issues in advance with procedures standardized across groups and moderators.

Although the literature reports the use of and types of focus groups are expanding, there is much still to be learned about how the medium may affect the message. We explored five characteristics of focus groups reported as grounds for selecting focus groups as a data collection tool. Our study was limited to three venues that shared the voice-based feature. However, researchers apply the term 'focus group' loosely to many data collection venues that function in dissimilar temporal and spatial settings. It would benefit the field to conduct similar studies to compare the nature, characteristics, and yield from data collected in synchronous and asynchronous text-based focus groups to more traditional settings (face-to-face and telephone).

In the present study, we were not able to explore methods to minimize or maximize

moderator influence on the data. For example, one of the most effective ways to encourage someone to elaborate on a response is to give wait-time, otherwise known as the silent probe (Johnson, 2001). We suggest that future studies examine how moderators' use of probing and wait-time in the three different venues.

Of further interest is how the use of multiple moderators in a large national study may have influenced the yield of the data we analyzed. The moderators in our study only received written instructions and a follow up phone call if requested. We were not able to disentangle how this informal training influenced how the moderator conducted groups. We recommend the exploration of training and preparation of focus group moderators for data collection in large national studies and in multiple focus group venues.

Finally, to strengthen findings on large qualitative samples, it may be beneficial to follow up strong qualitative findings with statistical significance testing. As a means for further verification, we quantified our findings and conducted significance testing for each of the variables. The results from that analysis confirmed that many of our qualitative results were also statistically significant. Results from that phase of the study are in process of publication as a dissertation and may be accessed by emailing the author.

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