Enhancing College Students' Online Group Work Perceptions and Skills Using a Utility-Value Intervention

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Abstract
College students' perceptions of online group work can be negative, which creates challenges for implementing group work in online courses. Additionally, little research has examined group work skill development, despite calls for better preparing students for working effectively in groups. The purpose of the current study was to test the effectiveness of a utility-value intervention designed to enhance students' perceptions of online group work and their group work skill use. Students (N = 68) were randomly assigned to view a video and answer an essay question on the usefulness and benefits (utility value) of online group work and group work skills (intervention) or on how online group projects were graded (control). Students in the intervention condition indicated online group work to be more useful and reported greater post-intervention group work skill use compared to students in the control condition. Students further reported their perceptions of the usefulness and costs of online group work, as well as their group work skills and insights, in open-ended items. Overall, the current study provides an effective and easy to implement intervention for improving college students' perceptions of online group work and their group work skill use.

Keywords: Online group work, active learning, motivation, student attitudes, group work skills, online pedagogy

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Distance education and online course enrollment trends have steadily increased, with enrollment growing at a higher rate than that of traditional face-to-face courses (Allen & Seaman, 2015; EDUCAUSE, 2021). Specifically, the percentage of students enrolled in distance education courses has risen from 25.5% to 34.7% since 2012, and 2.3 million students (or 14% of the total undergraduate enrollment) exclusively enroll in distance education courses (U. S. Department of Education, 2020). In the wake of the COVID-19 pandemic, remote and online instruction have increased dramatically. While many higher education institutions are planning to resume in-person instruction at pre-pandemic levels, some are continuing to limit in-person classes due to health and safety concerns. Others are choosing to retain a higher number of hybrid or online courses post-pandemic due to student preferences (Burke, 2021). Indeed, a recent survey of students enrolled in U.S. higher education institutions found that a majority would like to take either fully online courses or hybrid courses (a combination of in-person and online instruction) in the future (McKenzie, 2021). As a result, the post-pandemic demand for distance education is expected to remain steady.

Review of Literature

The Importance of Group Work in Online Courses

With online and distance education continuing to grow, more instructors may be looking for ways to effectively use active learning strategies in their online courses. One particularly effective but often underutilized technique (Cherney et al., 2018) is online group work. Online collaborative learning or group work is a pedagogical tool that allows students to work together to accomplish a common learning task. Group work has been identified as a best practice in online education (Bailey & Card, 2009) and is associated with a number of benefits. Specifically, research consistently shows student learning outcomes are enhanced with collaborative learning compared to individual learning (Chapman et al., 2005; Stahl et al., 2014). Group learning provides students with the opportunity to clarify their knowledge, resulting in a deeper understanding of course material (Johnson & Johnson, 2005). Further, online collaborative work helps students better manage their course workload and allows them to learn from the strengths and unique perspectives of their peers (Chang & Kang, 2016).

Additionally, student engagement is a critical aspect of successful learning, but online students tend to be less engaged in active or collaborative learning compared to face-to-face students (Chen et al., 2008). Further, small group activities in online courses provide opportunities for learner-to-learner interaction which, in turn, helps foster a sense of community (Rovai, 2002; Moore et al., 2016). Indeed, students often feel isolated in online courses due to a lack of peer-to-peer interaction or reduced instructor presence. Researchers have suggested that isolation and lack of connection contribute to the higher attrition rates in online courses (Bowers & Kumar, 2015), so engaging students in collaborative work may be a part of improving online student retention.

In addition to learning outcome benefits, online group work allows students to develop competencies that will better prepare them for the workforce. These include building positive relationships, learning how to effectively manage tasks, engaging in complex problem solving, and resolving conflict. In fact, research consistently indicates the ability to work well in teams—especially with those from diverse backgrounds—is one of the top skills employers look for in college graduates (Hart Research & Associates, 2018). Further, learning to work effectively in groups is arguably one of the most important interpersonal skills students can develop, as it

influences employability, productivity, and career success (Johnson & Johnson, 1989; Chapman & Van Auken, 2001).

Challenges Associated with Online Group Work

Despite the benefits associated with online collaborative learning and group work, several challenges make it difficult for instructors to implement it effectively. Asynchronized communication between students creates unique challenges for facilitating online group work. These include time zone differences, lack of communication initiation, lack of response timeliness, and delayed peer feedback (Koh & Hill, 2009; Chang & Kang, 2016). Students also report logistical difficulties being harder to resolve in online classes compared to face-to-face classes (Smith et al., 2011) and view online collaborative work as more time consuming and resource intensive (MacNeill et al., 2014).

The most frequently reported group work challenge is the unequal distribution of effort—or the workload not being equitable among group members (Burdett & Hastie, 2009). "Free riders" are group members that do not contribute equally but still benefit from the work of other group members (Hall & Buzwell, 2012). Uneven contributions among group members can be more problematic for online group work settings, as it is easier for students to be less engaged and responsive compared to face-to-face group work settings (Chang & Kang, 2016). Unfortunately, it can be difficult to eliminate all instances of "free riding" but using peer evaluation improves individual accountability within groups (Maiden & Perry, 2011).

Student attitudes toward group work may pose further challenges when attempting to facilitate online group work. Overall findings related to students' perceptions of online group work are mixed. Some research indicates that students hold more negative perceptions of online group work than face-to-face group work (Smith et al., 2011; Rezaei, 2017), and some students feel that online courses should not require students to work in groups (Lee et al., 2016). Additionally, group work assessments were found to be a key source of online course dissatisfaction (Garratt-Reed et al., 2016) and a majority (77%) of adult online learners disagreed that group projects were helpful in their courses (Stevens, 2014). On the other hand, Martin and Bolliger (2018) found that the most important strategies for online engagement, as rated by students, were relevant to peer interaction and collaborative learning. Additionally, positive perceptions of online group work are reported more often when instructors provide structure and guidance with online collaborative activities (Faja, 2013) and when they implement strategies for increasing the effectiveness of online collaboration (Falls et al., 2014). Thus, instructors appear to play an important role in enhancing students' perceptions of online group work. These findings mirror student perceptions of face-to-face group work as well. Evidence suggests that active facilitation and support from instructors are integral to managing negative perceptions of group work (Chapman & Van Auken, 2001; Bailey et al., 2015).

Improving Student Perceptions of Online Group Work

Given that attitudes are often a key determinant of behavior (Ajzen & Fishbein, 1980), attempting to improve student attitudes toward online group work is an important endeavor. Students with positive attitudes toward group work should be more willing to work collaboratively, both in the classroom and in the workplace (Walker, 2001; Chapman & Van Auken, 2001). One recommendation for improving students' attitudes toward group work is to explain the rationale behind collaborative learning (Bailey et al., 2015). Indeed, faculty members who conveyed information about working in groups—including telling students about the value

and benefits of group work and providing them with information about group logistics and interpersonal dynamics—were more likely to have students who reported favorable experiences with group work (Chapman & Van Auken, 2001). These findings were correlational in nature, however, and the authors pointed to the need to empirically examine the potential effects of providing this information to students using experimental and control groups. The current study addresses this need by comparing perceptions of online group work between students who received information about the value and benefits associated with online group work to students who did not receive this information.

This approach to improving student attitudes toward online group work is rooted in the expectancy-value theory of motivation. According to this model, the perceived value of a task is the major driver of motivation to engage in the task—with task value including both *utility value* and *intrinsic value* (Wigfield & Eccles, 2002). Utility value refers to the perceived usefulness or relevance of the task to one's life (Hulleman et al., 2008), whereas intrinsic value refers to the enjoyment or inherent interest in a task (Eccles & Wigfield, 2002). Utility-value interventions have been used to improve students' attitudes toward their courses (e.g., high school mathematics and science) by informing them about the benefits of engaging in a task or having them write about the personal relevance and applicability of course material to their life goals (Rozek et al., 2015; Harackiewicz et al., 2016). These course-based interventions typically focus on utility value since it is more malleable by external factors than intrinsic value (Harackiewicz et al., 2012).

More recently, utility-value interventions have been used to effectively improve students' attitudes toward active learning strategies, including both face-to-face group discussion and online discussion boards. In both cases, interventions involved informing students about the benefits and importance of group discussion or online discussion board experience for learning outcomes, course performance, and career skill development. Compared to students in the control conditions who did not receive utility-value information, those in the intervention conditions reported greater perceived value and usefulness of group discussions and online discussion boards (Clinton & Kelly, 2020a; Clinton & Kelly, 2020b). Given that a utility-value intervention improved students' attitudes toward these active learning strategies, it seems plausible that it could also be used to improve students' attitudes toward online group work. The current study addressed this possibility by testing the effectiveness of a utility-value intervention designed to enhance students' perceptions of online group work.

The Impact of Group Work Skills Training

As previously discussed, opportunities for collaborative work in educational settings allow students to develop key workplace competencies (Dunne & Prince, 1997). However, some evidence suggests that students do not feel adequately prepared for the collaborative work their future careers will require (Landrum et al., 2010). Similarly, national surveys report an incongruity between students' perceived level of preparedness for various workplace competencies (including team-based learning) and their actual level of preparedness as rated by employers (Hart Research & Associates, 2018). The lack of preparation may be, in part, because faculty members infrequently utilize group work in their courses. Indeed, recent data from the National Survey of Student Engagement indicates that only 31.5% of senior-level students and 32.4% of first-year students reported collaborative learning experiences in their courses (NSSE, 2019).

Lack of preparedness for workplace collaboration may also stem from students failing to develop effective group work skills despite having experience with collaborative work in their courses. Placing students in group learning environments does not guarantee they will develop the skills necessary to work effectively in groups, and the assumption that most students already possess these skills has not received much support (Michaelson & Black, 1994; Prichard et al., 2006). As a result, researchers have called for improved student preparation to engage in collaborative work by teaching them how to do so effectively (Hillyard et al., 2010; Maiden & Perry, 2011). However, only two known studies have examined the effectiveness of receiving teamwork skills training. Both studies found that skills training significantly improved students' knowledge and proficiency of teamwork competencies (Ellis et al., 2005), as well as their use of team skills and individual test performance (Prichard et al., 2006). While these studies show the benefits of team skills training, the training did not happen within the context of a course nor were the skills used within the context of a course-based project or assignment. Therefore, it remains unclear whether group work skills training impacts students' group work skill use within the context of a course.

Further, researchers have only recently identified a measurable set of group work skills within an academic context, which has limited opportunities for meaningfully assessing student group work skill development. Cumming et al. (2015) developed and validated the Group Work Skills Questionnaire (GSQ), which assesses two types of group work skills: task management skills and interpersonal skills. The authors further recommended the GSQ be used as a tool to evaluate the effectiveness of group work skill interventions. Therefore, the current study contributed to this significant gap in research by comparing group work skill use between students who received direct instruction on group work skills and how to effectively work in groups (intervention condition) and students who did not receive this instruction (control condition).

The Current Study

The purpose of the current study was to evaluate the effectiveness of a utility-value intervention designed to improve students' perceptions of online group work, as well as their use of group work skills. The current study builds on previous work showing that perceptions of active learning strategies (face-to-face discussions; Clinton & Kelly, 2020a; and online discussions; Clinton & Kelly, 2020b) were more positive after engaging in a utility-value intervention. Since students tend to have negative attitudes toward online group work, specifically examining whether a utility-value intervention could improve students' attitudes toward online group work is particularly important. The current study also builds on prior research highlighting the benefits of teamwork skills training on students' knowledge, proficiency, and use of team skills (Ellis et al., 2005; Prichard et al., 2006). Given that instructors have been encouraged to help students better develop group work skills (Cumming et al., 2015), examining interventions targeting group work skill use is also critical. Furthermore, including group work skills education in the intervention should reinforce the utility value (perceived usefulness) of online group work, as knowledge and use of group work skills is relevant for students' career goals.

The following research questions were examined in the current study:

A) **Would the utility-value intervention lead to greater perceptions of the usefulness (i.e., perceived utility value) of online group work?**
Based on prior research, it was expected that students receiving the utility-value intervention would report higher levels of perceived usefulness compared to the control condition. Additionally, even though the intervention was not designed to increase students' inherent interest and enjoyment of online group work, it was possible that students receiving the utility-value intervention would also report enhanced intrinsic value of online group work (Hulleman et al., 2017).

B) **Would the utility-value intervention lead to greater group work skill use?**
Based on prior research indicating that perceived utility value promotes active task engagement and helps students acquire activity-related skills and knowledge (Hulleman & Harackiewicz, 2020), it was expected that students engaging in the utility-value intervention would report greater post-intervention group work skill use compared to the control condition.

C) **What would students in both the utility-value intervention and control condition report with respect to the usefulness (perceived utility value), interest and enjoyment (perceived intrinsic value), and costs of online group work?**
This question was examined through open-ended questions assessing how student responses varied based on whether they received the utility-value information. Further, examining these open-ended responses allowed for greater understanding of student attitudes toward online group work.

D) **Were student attitudes toward online group work and group work skill use related to course performance?**
Based on prior research showing utility value interventions sometimes lead to better course performance (Fritea & Opre, 2015), it was possible that greater perceived value of online group work would be associated with better performance in the course, in terms of students' group project grades and final course performance. Further, based on prior research showing individual test performance benefits for team-skills trained participants (Prichard et al., 2006), it was possible that greater group work skill use would lead to better performance on the group project for students in the intervention condition.

Method

Context

The current study involved two sections (Fall 2020 and Spring 2021) of an asynchronous online undergraduate History and Systems of Psychology course (PSYC 405) at a midsized, Midwestern public university. The same instructor taught both sections of the course and all course materials and assessments were identical between the course sections. Students in both sections of the course were required to complete a group project during the first half of the semester. The project involved creating and presenting a research poster on a classic study in the history of psychology. Specifically, each group was assigned a study and worked together to create a draft and a final copy of a research poster. The poster draft was submitted during the

fourth week of the course and students received feedback from either the instructor or course graduate teaching assistant.

During the eighth week of the course, the final copy of the poster was due, and a virtual poster presentation session took place. For the poster session, groups recorded a 5–7-minute video presentation of their poster, with all group members being required to present. To share and discuss the poster presentations, groups were required to post their video presentations to the discussion board on their course Learning Management System (Blackboard). To facilitate poster discussion, each student was required to watch video presentations for five other groups and ask a follow-up question for each presentation. Further, each group was responsible for replying to all questions asked about their poster. Students received credit for all components of the project (group contract, poster draft, final poster, video presentation, and poster discussion) and the project counted toward 13% of students' final grade in the course. Finally, given that technology tool difficulties are a roadblock to effective online collaborative work (Robinson et al., 2017), the instructor familiarized students with tools for file sharing, group member discussion, and video presentation recording.

This study used a quantitative experimental design in which most analyses were numerically examined through descriptive and inferential statistics (Creswell, 2019). Because random assignment was used, causal inference can be made about the effect of the intervention on post-intervention measures (Creswell, 2019). However, open-ended responses on the post-intervention measures were examined in a more qualitative, open manner in order to hear student voices.

Participants

All 106 students in both course sections were eligible to participate, but a total of 68 students completed the activities related to this study (pre-intervention questionnaire, post-video quiz, and post-intervention questionnaire; see Materials and Measures for details). Of these 68 students, 9 were male, 58 were female, and one reported a non-binary gender identity. Students ranged in age from 20–58 years (M = 23.35, SD = 6.21). With respect to class level, all participants were senior-level students, as the course was an undergraduate capstone course. Racial and ethnic identity data were not collected, but the public university where the study was conducted is a predominantly White institution. Further, 14 students (20.6%) reported first-generation student status and most (77.9%) were on-campus students taking the course online. Finally, 42 students (61.8%) reported having prior experience with online groupwork in their courses, with an average of 24.66% of their online courses including some type of groupwork component (SD = 23.33%). Prior to data collection, the authors obtained approval from the institutional review board and an exempt protocol was granted.

Materials and Measures

Pre-intervention Measures. To assess students' pre-intervention attitudes toward group work, the Feelings Toward Group Work questionnaire (Cantwell & Adams, 2002) was adapted. Participants indicated their level of agreement with items measuring preference for group work on a 5-point scale ranging from *never true of me* to *always true of me*. The questionnaire included three scales: preference for individual work (seven items; α = .70), preference for working in groups (six items; α = .60), and discomfort with group work (four items; α = .76). Additionally, the Groupwork Skills Questionnaire (GSQ; Cumming et al., 2015) was used to assess students' pre-intervention group work skills. Participants indicated the frequency with

which they employed specific skills on a 5-point scale ranging from *never* to *always*. Two subscales are included on the measure: task management skills (5 items; α = .72), which includes factors such as establishing goals, monitoring, and evaluating progress, and planning the sequence of activities to be completed, and interpersonal skills (5 items; α = .81), which includes factors such as resolving conflict, enhancing communication, and providing social support for group members.

Intervention and Control Materials. For the intervention condition, a video lecture designed to enhance the utility value of online group work and provide information about group work skills was created. Specifically, the video presented evidence regarding the importance of group work for career skill development and workplace readiness, course performance, and building a sense of community in an online course environment. The video also described effective contributions to groups and teams, including discussion of important group work skills like setting ground rules and expectations, communicating effectively, evaluating group work progress, being responsive to group members, and dealing with "free riders." Each of the benefits of online group work presented in the video related to utility value in that they were either relevant for goals of doing well in the course or developing career skills. The video for the control condition only included information about the requirements for the course group project and how it would be graded.

After viewing the intervention or control video, students in both conditions took a required quiz on the video. In both conditions, the quiz had the same 8 multiple-choice items based on the syllabus, and the last item was an essay that varied by condition. The purpose of this essay was to have students engage in the intervention. For the intervention condition, students answered the question, "Based on the video you saw on online group work in this course, write 2 paragraphs about how online group work may be useful for learning course material or relevant to your life goals. Give at least two examples." For the control condition, students answered the question, "Based on the video you saw on the group project requirements for this course, write 2 paragraphs about how the group project will be structured and graded."

Post-intervention Questionnaire. The post-intervention questionnaire included a scale adapted from Hulleman et al. (2008) to report perceptions related to the intrinsic value (six items; α = .91) and the utility value of online group work (nine items; α = .91). Participants indicated their level of agreement on a 5-point scale ranging from *disagree strongly* to *agree strongly*. Three open-ended items were also included regarding the perceived intrinsic value ("What is inherently interesting or enjoyable about online group work?"), perceived utility value ("How is online group work useful for you, now or in the future?"), and potential costs of online group work ("What are the costs or downsides of online group work?"). The themes for items were coded through a content analysis in an inductive manner (Barry, Murphy, & Drew, 2015). A research assistant further coded a subset of the responses, and inter-rater agreement between the author's coding and the research assistant's coding was good (k = .90). An additional open-ended item asked students to indicate the skills or insights they developed because of participating in online group work in the course. Inter-rater agreement for this item was also good (k = .89). Finally, participants completed the Groupwork Skills Questionnaire (Cumming et al., 2015) to measure post-intervention skill use, and demographic items were included at the end of the post-intervention questionnaire. The study was not pre-registered, but materials and measures are

available at the project page on the Open Science Framework (https://osf.io/4rfn8/?view_only=bfe396c398334953bcf6137ab9615a31).

Procedure

At the beginning of the Fall 2020 and Spring 2021 semesters, students were invited to complete the pre-intervention questionnaire for bonus points. An alternative assignment was available for students that chose not to complete the pre-intervention questionnaire. At the end of the first week of the semester, students were randomly assigned to the intervention or control condition through their course Learning Management System (Blackboard). The instructor also randomly assigned students to groups within the intervention (n = 36) and control conditions (n = 32). In other words, groups were composed of either all intervention condition students or all control condition students, not a mixture of students from both conditions. Following the recommendations for facilitating online group work (Hesterman, 2016), each group completed and signed a group contract before beginning work on the project. The purpose of the contract was to have students discuss and agree to work and establish performance expectations in advance of working together. At the end of the first week of the course, students viewed a video on either the benefits of online group work (intervention) or the requirements for the group work project and how it would be graded (control). Following the video, students completed the post-video quiz and responded to the essay prompt.

During the ninth week of the semester, after the group project had been completed, students were invited to complete the post-intervention questionnaire for bonus points. An alternative assignment was available for bonus points for the students that chose not to complete the post-intervention questionnaire. Additionally, following the recommendations for facilitating group work (Chapman & Van Auken, 2001; Burdett, 2003), students completed a self-evaluation of their own performance and peer evaluations of their group members' performance through their course Learning Management System. The purpose of these evaluations was to ensure the individual contributions of all group members were acknowledged and to encourage individual accountability within groups (Burdett, 2003).

Results

Pre-Intervention Groupwork Attitudes and Skills

To determine whether initial differences in feelings toward group work existed between conditions, a series of one-way ANOVAs were run, with condition (control or intervention) as the independent variable and preference for individual work, preference for group work, and discomfort with group work as the dependent variables. There were no significant differences in preference for individual work (F (1, 66) = .077, p = .782) or preference for group work (F (1, 66) = .071, p = .790). However, the intervention condition reported significantly more discomfort with group work than the control condition (F (1,66) = 8.110, p = .006, η^2 = .109). To control for this pre-intervention attitude difference, "discomfort with group work" was included as a covariate in post-intervention analyses. See Table 1 for means and standard deviations by condition.

Table 1
Pre-Intervention Measure Means and Standard Deviations by Condition

Construct	Control (*n* = 32) *M (SD)*	Intervention (*n* = 36) *M (SD)*
Preference for Individual Work	22.19 (6.47)	22.61 (6.10)
Preference for Group Work	24.47 (4.01)	24.72 (3.82)
Discomfort with Group Work	8.97 (2.79)	11.14* (3.42)
Task Skills	17.00 (3.04)	16.86 (3.63)
Interpersonal Skills	19.09 (3.38)	19.50 (3.44)

Note. $^{*}p < .05$.

To determine whether initial differences in experience with online group work existed between conditions, an independent sample's t-test was run with prior online groupwork experience (percentage of online courses with groupwork) included as the dependent variable, and condition (control or intervention) as the independent variable. There were no significant differences in online groupwork experience between the conditions (t (66) = -1.106, p = .273).

To determine whether initial differences in group work skills existed between the conditions, two one-way ANOVAs were run, with condition as the independent variable, and task skills and interpersonal skills as the dependent variables. There were no initial differences in task skill use (F (1, 66) = .029, p = .886) and interpersonal skill use (F (1, 66) = .240, p = .626) between the conditions. See Table 1 for means and standard deviations by condition.

Post-Intervention Group Work Attitudes

To test for post-intervention utility value and intrinsic value effects, two one-way ANCOVAs were conducted, with "discomfort with group work" included as a covariate. There were no significant differences in the intrinsic value of online groupwork between conditions (F (1, 66) = 2.150, p = .147), but the intervention condition reported significantly greater utility value for online group work (F (1,66) = 6.567, p = .013, η^2 = .092) than the control condition. See Table 2 for means and standard deviations by condition.

Table 2
Post-Intervention Measure Means and Standard Deviations by Condition

Construct	Control (*n* = 32) *M (SD)*	Intervention (*n* = 36) *M (SD)*
Intrinsic Value	2.89 (.92)	3.11 (.93)
Utility Value	3.51 (.69)	3.84* (.66)
Task Skills	17.59 (3.64)	18.81* (2.94)
Interpersonal Skills	18.59 (3.64)	19.67* (4.12)

Note. $^{*}p < .05$.

Further, Tables 3, 4, and 5 include the frequencies of the codes for intrinsic value, utility value, and cost, respectively, with some students giving multiple answers. These frequencies represent the number of students who made a statement coded as a particular theme. In terms of intrinsic value, students most frequently reported that hearing or discussing others' ideas, meeting new people, and socializing were inherently interesting or enjoyable aspects of online group work. Fewer students reported working collaboratively and working with those having different opinions or backgrounds to be interesting or enjoyable about online group work. Teaching others and learning from others were additional intrinsic value themes.

Table 3

Examples and Frequency of Themes by Condition for the Intrinsic Value of Online Group Work

Theme	Example	Intervention	Control	Total
Hearing or discussing others' ideas	"Seeing other peoples' ideas about the subject being discussed in the group."	13	12	25
Meeting new people and socializing with others	"I enjoy getting to know more students on a better personal level and that is due to group work."	8	12	20
Working collaboratively	"Sometimes it's nice to be able to break up a project among other people rather than doing everything yourself."	5	9	14
Working with people that are different from you	"Being able to see things in a different perspective based on how other people learn and think."	7	5	12
Teaching others and learning from others	"You get to learn information that you may not know if working alone."	8	1	9
Nothing inherently interesting or enjoyable	"I do not find any particular thing about group work interesting or enjoyable."	1	2	3

Note: $N = 68$ ($n = 32$ for Control, $n = 36$ for Intervention)

In terms of utility value, students most frequently reported that online group work was useful for their future career endeavors (especially the intervention condition) and for helping build teamwork and communication skills. Less frequently mentioned themes were teaching and learning from others, exposure to different perspectives, and time management.

Table 4

Examples and Frequency of Themes by Condition for the Utility Value of Online Group Work.

Theme	Example	Intervention	Control	Total
Teamwork and communication skills	"Group work teaches me how to have better communication and teamwork skills."	15	14	29
Future career benefits	"In the profession I want to go into, there is always going to be some form of group work."	18	8	26
Teaching others and learning from others	"Teaching students with less experience."	3	3	6

Exposure to viewpoints and perspectives of others	"It helps to have multiple perspectives to better understand topics."	0	5	5
Time management	"Keeps me on track to finish my portion in a timely manner."	4	0	4
Working with people who are different from you	"Working with different personalities is a learned skill."	2	2	4
Not useful	"I do not find group work to be a useful addition to my academic studies now, nor do I perceive it will benefit me in any way for the future."	0	1	1

Note: $N = 68$ ($n = 32$ for Control, $n = 36$ for Intervention)

For the costs or downsides of online group work, students most frequently reported unequal workload distribution and having to pick up the slack from non-contributing group members (slightly more so for the control than the intervention condition). Students also reported coordinating schedules, having to trust and rely on others, and having different standards of work as costs or downsides of online group work. Less frequently reported themes included online group work being too time consuming and experiencing difficult group dynamics.

Table 5

Examples and Frequency of Themes by Condition for the Costs of Online Group Work.

Theme	Example	Intervention	Control	Total
Unequal workload distribution or picking up other group members' slack	"Sometimes some members of groups do not contribute the same amount of effort as others and that can be frustrating."	17	20	27
Having to rely on others	"Relying on others to get their work done."	7	7	14
Difficulties coordinating schedules	"My schedule or when I am available makes it hard to coordinate times with other group members."	6	4	10
Different expectations or standards of work between group members	"Others doing the work in ways you did not visualize it being done."	4	6	10
More time consuming than individual work	"Often times group work takes more time than individual activities."	4	2	6
Group member dynamic difficulties	"When others do not acknowledge your ideas or presence, it lessens confidence."	3	1	4
Other members getting credit despite not doing work	"I am doing all the work while they do little and still get a good grade."	2	1	3

Note: $N = 68$ ($n = 32$ for Control, $n = 36$ for Intervention)

Post-Intervention Group Work Skills

To determine whether there were post-intervention differences in group work skill use based on condition (control or intervention), a series of one-way ANCOVAs were run with "discomfort with group work" included as a covariate. Both task skill use (F (1, 66) = 4.339, p =

.041, η^2 = .045) and interpersonal skill use (F (1,66) = 5.566, p = .021, η^2 = .079) were significantly higher in the intervention condition than the control condition. See Table 2 for means and standard deviations by condition.

Further, Table 6 includes the frequencies of the codes for the skills and insights developed as a result of participating in online group work, with some students giving multiple answers. These frequencies represent the number of students who made a statement coded with a particular theme. In terms of skills and insights, students in both conditions frequently reported communication skills to be the key skill developed through their online group work experience. Additional frequently reported skills included patience, compromise, listening, and working with others. Less frequently reported skills and insights were learning how to complete a project online, leadership skills, and planning, strategizing, and delegating work.

Table 6

Examples and Frequency of Themes by Condition for Skills and Insights Developed Through Online Group Work.

Theme	Example	Intervention	Control	Total
Communication skills	"Being able to communicate with others."	10	9	19
Patience, compromise, and listening to others	"I've learned to be patient and let others do their work on their own time."	6	12	18
Working with others	"Learning how to work as a team."	7	5	12
Time management and working efficiently	"More hands make less work."	7	4	11
Leadership skills	"I learned to take the lead instead of waiting for something to be assigned to me."	3	4	7
Collaborating online	"Working effectively with others in an online environment."	3	2	5
Planning, strategizing, and delegating	"Coming up with ideas and strategies for the project."	4	1	5

Note: N = 68 (n = 32 for Control, n = 36 for Intervention)

Utility Value, Group Work Skills, and Course Performance

To determine whether students' attitudes toward online group work and post-intervention group work skill use were associated with course performance, a series of analyses were conducted. First, a one-way ANCOVA was run with project grade as the dependent variable, condition as the independent variable, and "discomfort with group work" included as a covariate. There were no differences in group project grades between the control (M = 96.40, SD = 2.76) and intervention (M = 96.55, SD = 1.70) conditions (F (1, 66) = .210, p = .649), indicating that the intervention did not reliably impact final group project grades. Additionally, to examine whether perceived utility value of online groupwork was associated with group project grades, a Pearson product correlation was run. A small, nonsignificant positive correlation was found (r (68) = .095, p = .441), revealing that the perceived utility value of online groupwork was not related to final group project grades.

Further, a Pearson product correlation was conducted to examine whether students' post-intervention groupwork skill use correlated with their group project grade. A small,

nonsignificant positive correlation was found (r (68) = .069, p = .577), indicating that students' post-intervention groupwork skill use was not associated with their final group project grade.

Finally, a one-way ANCOVA was run with final course grade as the dependent variable, condition as the independent variable, and "discomfort with group work" included as a covariate. There were no differences in final course grades between the control (M = 90.60, SD = 4.29) and intervention (M = 90.11, SD = 5.63) conditions (F (1, 66) = .050, p = .825), indicating that the intervention did not reliably impact final group course grades. Further, a Pearson product correlation was run to examine whether perceived utility value of online groupwork was associated with students' final course grades. A small, nonsignificant positive correlation was found (r (68) = .159, p = .376), revealing that the perceived utility value of online groupwork was not related to final course grades.

Discussion

The purpose of the current study was to test the effectiveness of a utility-value intervention on students' perceptions of online group work and their use of group work skills. Overall, the utility-value intervention was effective, as students in the intervention condition reported greater perceived usefulness (utility value) of online group work than students in the control condition. This did not extend to intrinsic value, however, which differs from prior research showing that enhanced utility value also benefitted intrinsic value (Hulleman et al., 2010). Since intrinsic value comes from within an individual, it may be less malleable than utility value and a stronger intervention may have been needed to show intrinsic value effects (Harackiewicz et al., 2016). The current study also supports the application of utility-value interventions to active learning strategies and extends prior work showing the interventions can be used to effectively improve students' perceptions of these strategies (Clinton & Kelly, 2020a; Clinton & Kelly, 2020b). This is important given that students may resist active learning despite the benefits for student engagement and course performance (Finelli et al., 2018).

Even though the intervention did not show a benefit for intrinsic value, students did report finding aspects of online group work to be inherently interesting and enjoyable. Responses to the open-ended intrinsic value item most frequently indicated that meeting and interacting with other students were the most enjoyable aspects of online group work. This points to the importance of opportunities for social interaction in online courses and underscores the finding that online group work can build a sense of community in online courses (Ouzts, 2006).

The utility-value intervention did not impact course performance as assessed by group project scores and final course grades. This was not surprising given little evidence exists that utility-value interventions improve course performance, particularly in psychology courses (Soicher & Becker-Blease, 2020). Students' final course grades were likely affected by other moderating variables not related to motivation. Further, utility-value interventions typically lead to greater course performance benefits for male students (Hulleman et al., 2017). Given the sample in the current study included mostly female students, finding course performance benefits would have been unexpected.

Additionally, group work skill use was not associated with better performance on the group project. It was tentatively hypothesized that greater group work skill use might lead to better group project performance based on prior research indicating that team-skills training led to better individual test performance (Prichard et al., 2006). Instead, group project performance in the current study was equivalent between the control and intervention conditions. This was

likely because groups submitted a project draft and received feedback, thereby giving groups in both conditions an equal opportunity to submit a high-quality final project.

Consistent with prior research indicating benefits associated with team-skills training (Ellis et al., 2005; Prichard et al., 2006), the utility-value intervention in the current study effectively improved students' group work skill use. Students reported greater post-intervention use of both task skills and interpersonal skills. These findings support the notion that informing students about specific group work skills and how to effectively work in groups is enough to promote greater skill use (Chapman & Van Auken, 2001). This is important given that students may not possess effective group work skills, nor will they necessarily develop these skills as a result of being placed in collaborative learning situations (Oakley et al., 2004; Prichard et al., 2006). Future research should examine the impact of group work skill interventions on introductory college students, as the current study utilized an upper-level student sample. Introductory students have had fewer opportunities for group work and would particularly benefit from instruction on group work skills, given collaborative learning is often used by instructors of introductory-level courses (Thompson & Lamanna, 2019).

Several limitations in the current study should also be mentioned. The context for this study included a psychology capstone course at just one institution. Therefore, generalizability is somewhat limited, and students may have been more inherently motivated to engage in the course. Future research should test the effectiveness of this intervention with students from other disciplinary backgrounds, as well as with different forms of online collaborative work. In addition, while a number of factors influence the effectiveness of group work, successes in the current study were limited to attitudinal readiness and group work skill use. Further, we did not collect demographic information about students' racial or ethnic identities, nor whether they were domestic or international students. Given that cultural backgrounds may influence students' comfort with interacting with other students (Hofstede, 1986; Mittelmeier et al., 2017), an interesting avenue for future research would be how identities relate to group work experiences.

It is also important to acknowledge that the use of a group contract and peer evaluations may have impacted the study's outcomes. Both practices improve group functioning and perceptions of group work (Aggarwal & O'Brien, 2008) and were not controlled for in the current study. However, despite this, students in the intervention condition still experienced improved perceptions and group work skill use relative to students in the control condition. Finally, data collection took place during the COVID-19 pandemic, which has significantly disrupted college students' lives and adversely impacted both their physical and mental health (Copeland et al., 2021). This undoubtedly created additional challenges for completing online group work. Despite these challenges, online group work provided students with the opportunity to engage with their peers and likely created a greater sense of community in the course, both of which have been central to students' learning and motivation during the pandemic (Conklin & Garrett Dikkers, 2021).

Conclusions

Overall, the current study provides a brief, easy-to-use, and empirically supported intervention for improving college students' perceptions of online group work and their group work skill use. Given the growth prediction for online and distance education (Burke, 2021; McKenzie, 2021), finding ways to implement active learning strategies more effectively in online courses is critical. Students' negative perceptions of online group work can make it more challenging to facilitate (Chang & Kang, 2016), but the current study offers a feasible way to

mitigate this challenge and potentially improve students' experiences with online group work. Findings from the current study further point to the benefits of utilizing group work in online courses. Students reported gaining experience with a variety of skills as a result of their online group work and recognized the usefulness of online group work for career skill development and future career endeavors. Given that employers seek to hire college graduates with collaborative work experience and teamwork skills (Hart Research & Associates, 2018), students should be given ample opportunities to develop these skills by participating in group work in their online courses.

Declarations
The authors declare no conflicts of interest.
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