Teaching beyond the Topic
Teaching Teamwork Skills in Higher Education

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Employers value teamwork because effective teamwork can create a sustainable competitive advantage in the marketplace. Organizations have reported that the #1 competency they desire in a candidate is the ability to work well in teams. According to survey data, HE students lack the necessary teamwork skills when they enter the workplace. Since HE students should be prepared to bring excellent teamwork skills into the market place, institutions of HE seek to teach the teamwork competency. Accreditation bodies from many disciplines support the need to teach teamwork in HE. In this paper, I demonstrate a method to teach teamwork skills based on foundational learning theories including mnemonics, experiential learning, primacy/recency, and repetition. Student survey results indicate an overwhelming indication that they comprehend the stages of teamwork based on my process. Indications suggest they will be much better prepared to succeed in their interviews and careers.

INTRODUCTION

Teamwork is the principal method by which organizations make decisions, develop strategies, and measure performance (Miller, 2003). Work teams dominate organizations because decision-making is more effective when made in teams (e.g. Bamber, Watson, & Hill, 1996; LaFasto & Larson, 1992; Guzzo & Shea, 1992). Organizations value great teamwork because it can provide a sustainable competitive advantage (Pfeffer, 1994; Barney, 1991). Resource-based theory indicates that a sustainable competitive advantage can be achieved from unique "bundles" of resources that cannot be imitated (Barney, 1991; Wernerfelt, 1984). Barney stated (1991, p. 110) "physical technology, whether it takes the form of machine tools or robotics in factories or complex information management systems, is by itself typically imitable." Alternatively, human assets are hard to imitate because of scarcity, specialization and tacit knowledge (Boxall, 1996; Grant, 1996; Hall, 1993; Teece, 1982). Given this context, effective teamwork is a critical component to creating human competitive advantage (Pfeffer, 1994; Barney, 1991) in organizations.

Since teamwork is a method of sustainable competitive advantage, it is understandable that organizations consider teamwork skills as the number one competency needed by higher education (HE) graduates. In a 2015 NACE survey, 260 employers were surveyed and asked to rate the most important skills they look for in a candidate. Most of the participants were large employers such as Chevron, IBM, and Seagate. For business majors, the most desired competency was effective teamwork skills. Additionally, effective teamwork skills were the most desired competency for all majors including engineering and the computer/information sciences (NACE, 2015). As important as the teamwork skill may be, HE may not be providing students with enough teamwork skill. For example, the on-line benefits

and compensation information company PayScale recently surveyed over 63,000 managers and over 14,000 students. The survey indicated that 36% of HE graduates have less-than-desired teamwork skills (2016). Particularly alarming and from the same survey, managers and graduates disagree on their level of preparedness. Of graduates, 87% believe that they are well prepared to enter the workplace where only 50% of managers believe that graduates are well prepared.

Since businesses consider teamwork skills as a core competency, institutions of higher learning—and their accrediting bodies—consider teamwork skills as a critical learning objective (e.g. Association to Advance Collegiate Schools of Business, 2013; Association of American Colleges and Universities, 2011; Accreditation Board for Engineering and Technology, 1998; American Institute of Certified Public Accountants, n.d.). Likewise, The Greater Expectations National Panel Report (AACU, 2002), issued a call for the development of better teamwork skills training in HE. Accreditation boards in higher learning have included teamwork as part of their proposed criteria for desired professional skill set. For example, in 1996, the ABET board of directors changed the engineering criteria to include teamwork as a key competency (Shuman, Besterfield-Sacre, & McGourty, 2005). Further, one of the most popular choices for inclusion in learning goals by AACSB accredited business schools is teamwork (AACSB, 2013).

Institutions of higher learning have tried to satisfy the desires of employers by providing students who can immediately contribute within a team (Chen, Donahue, & Klimoski, 2004; Siegel & Sorenson, 1999). However, one study indicated that although 72% of business professors assigned team projects, 81% indicated that no teamwork guidance was provided (Bolton, 1999). Learning about teamwork and practicing teamwork is critical in the learning process (Mullan, 2007; Bushe & Coetzer, 1997; Kriflik &; Tuckman, 1965). According to industry experts, HE can do a much better job of preparing our students with this competency.

Researchers such as Scott-Ladd and Chan (2008) have stated that there is a gap in the literature regarding the processes by which genuine practical skills, such as teamwork, should be taught—thus enabling students to successfully enter the workforce. Given the importance of teamwork, research to demonstrate effective methods to teach teamwork in HE should be expanded. The primary purpose of this paper therefore is to demonstrate how I have used foundational theories of learning including mnemonics, experiential learning, primacy/recency, and repetition to effectively teach teamwork.

Underpinning Theory

Teams are fundamental to the human condition. Interest in team and teambuilding research became a major research interest in the 1920's. (Sundstrom, McIntyre, Halfhill, & Richards, 2000). In his seminal work from 1965, Tuckman reviewed fifty-five articles regarding small-group development and created a popular model. The Tuckman model is the most widely used and accepted model of teambuilding in organizational literature (Bonebright, 2010; Miller, 2003). Tuckman's model provides a parsimonious approach to facilitate the incorporation of effective teamwork theory into HE student competency set (Miller, 2003). Tuckman suggests the following stages: *forming, storming, norming, performing,* and *adjourning*. I chose Tuckman's model not only for its accepted tenets, but also because of the mnemonic rhyming pattern. Figure 1 shows a summary of these stages. Each stage of team development has its own recognizable feelings and behaviors. Tuckman's model helps students to understand the *why* of team interactions and the interactions expected during the stages. Tuckman's model provides a foundation for conversations that will enhance and escalate positive teamwork outcomes.

Form

Teams form when they adopt a task. The team may have a basic idea of the task and begin the process of setting goals to perform the given task. Team members may behave quite independently— to avoid conflict they sometimes agree to a task that they have no intention of completing. Team members may be motivated but are usually relatively uninformed of the issues and capabilities of the team. Team members are typically civil but focused on their own self-interest (e.g. How will this benefit me? Do I want to make time for this? Will I like the team? Will this project make me "look" better? Should I work hard or take it easy?). All members analyze the major task functions, but with lack of conflict management and trust,

members may keep their ideas veiled. Small groups may break off from the team and create multiple discussion centers trying to define the scope, the approach, and other analogous concerns. The key to rising from forming to storming is to surrender to the idea that they should expect conflict.

Storm

In the Storming stage, teams experience conflicts. Tuckman suggests that many teams never emerge from Storming and regress to Forming when new challenges arise. Tuckman indicates that without patience and acceptance for other team members, the team will stall and fail in this stage. The team must grow to understand that conflicts make the team stronger, more flexible, and more effective. The team members need to resolve their own differences and learn how to resolve internal conflicts. Only when members participate with one another comfortably can the team progress to Norming.

Norm

When the team begins to succeed in resolving conflicts, they enter the Norming stage wherein they discover greater trust and *esprite de corps*. The team clearly defines their goal. Team members take stewardship of their roles that further defines Norming. The team is motivated to achieve their goals. Members accept that they have differences and are accepting of those differences. If there are issues, they are able to address them based on the norms of the team. Conflict resolution—rather than avoidance—is critical to progress in this stage.

Perform

Performing teams solidify team roles and focus on problem solving. Team members efficiently manage conflict. At this point, the team focuses on their task and goals and thereby leverage their skills. Each member is motivated and engaged. The team members are comfortable and independent—being able to handle decision-making and dissent without external intervention. Dissent is expected and allowed as long as the team processes the dissent via norms established by the group. Even when teams have entered the Performing stage, they often return to earlier stages. Teams may regularly cycle through the phases when tasks changes or they get new members.

Adjourn

In 1977, Tuckman and Jensen revisited the stages of small-group development. They indicated that there was a fifth stage of the model introducing a separation stage introduced by other researchers (e.g. Braaten, 1975; Mann, 1971). They accepted the research and indicated "the Tuckman model is hereby amended to include a fifth stage: adjourning" (p. 423). Adjourning happens when the team becomes aware of its impending termination. Adjourning involves finishing the task and breaking up the team.

Learning Theories

Learning theories enlighten the HE teaching process. I rely on theory as a foundation for teaching teamwork skills. Proven teaching theory reinforces, in a memorable and efficient manner, the teamwork learning process. I utilize the foundational learning theories of mnemonics, experiential learning, primacy/recency, and repetition. To echo Kurt Lewin (1945), "There is nothing as practical as good theory" (p. 169).

Mnemonics

Mnemonics is a memory help based on the theory that simple prose is more difficult to learn than mnemonics verse (McGeoch & Irion, 1952). For example, many students create mnemonic systems (e.g., Wood, 1967; Furst, 1948) to remember the ordering of items. Many individuals learned the alphabet and months of the year using successive mnemonic patterns (Bower & Bolton, 1969). Tuckman's model inherently includes a mnemonic pattern that is easily remembered based on its rhyming structure (*Form, Storm, Norm, Perform,* and *Adjourn*).

Experiential Learning

Experiential Learning Theory (ELT) provides a holistic model of the adult learning process consistent with how people learn (Kolb, Baker, & Jensen, 2002). ELT is rooted in the academic origins of Lewin, Piaget, Dewey, Freire, and James (Kolb, 1984). Keeton and Tate (1978) indicate that experiential learning is when the learner is directly experiencing the environment contrasted to a learner who only reads, hears about, talks, or writes of learnings. An ever-expanding group of educators see experiential leaning as the method that will revitalize HE curriculum (Kolb, 2014). In experiential learning, "…the learner is directly in touch with the realities being studied….It involves direct encounter with the phenomenon being studied rather than merely thinking about the encounter or only considering the possibility of doing something with it. (Keeton and Tate, 1978, p.2). Researchers contrast experiential learning with lecture learning in the classroom (Keeton & Tate, 1978). In HE education, experiential learning exercises adds a direct experience component to team learning. Kolb further suggests that experiential learning should be applied vigorously in HE (Kolb, 1984). Experiential learning theory is a "powerful and proven approach to teaching and learning that is based on one incontrovertible reality: people learn best through experience" (Kolb, 2015, introduction).

Primacy/Recency effect

The primacy and recency effect theorizes that there is a steep memory curve for primacy—material presented first—as well as a steep memory curve for the material presented last. The material presented first and the material presented last are remembered better than material in the middle (Murdock, 1962). Steiner and Rain (1989), in their review of performance evaluations, suggest that performance reviews more heavily reflect actions from the beginning of the review cycle and at the end of the cycle, rather than those actions taken in the middle of the cycle. Thus suggesting that primacy and recency heavily affect memory and recall.

Repetition

Repetition of material affects memory recall. The more times the material is presented, "the more accurate are its recall and recognition, the shorter is its retrieval latency, and the higher is its judged frequency" (Hintzman & Block, 1971:297). Repetition is an important practice by teachers throughout the world (DeKeyser, 2007). The tenet that students will be able to recall material the more one repeats it (Larsen, 2012), is an important part of learning theory and is a concept which most educators accept and practice.

Processes

Research indicates that this jigsaw puzzle approach is salient to HE learning (Goodsell, Maher, Tinto, Smith, & MacGregor, 1992). They further indicate that using a variety of task activities-- including teaching the teamwork concept-- build a cooperative learning environment. Further, students learn from one another and get a better understanding of the "big picture" associated with teamwork in organizations. Based on application of these foundational learning theories and selection of the Tuckman model of teambuilding, I use the following activities and structure to teach effective teamwork skills in my HE classroom. First, I start the semester by creating static groups of 5-7 students. On the first day, we begin with an experiential exercise using Legos. Since the first class is based on teamwork, I create a primacy learning effect as well as an experiential. During the semester, the teams complete ten team activities during class time with my supervision as needed. The ten activities provides more experiential learning because they are hands-on activities based on actual workplace scenarios. These exercises provide repetition learning. Finally, the teams work on a major group presentation all semester and present in a team format at the end of the semester. During the entire process, we debrief on teamwork processes and one of the last lectures is a solid presentation on the importance of teamwork skill to obtain jobs and succeed in the workforce. Having the major team activity and lecture at the end of the semester creates a recency effect.

TeamBuildr

TeamBuldr is a Legos based activity where I assign teams a variety of tasks to accelerate the team formation process. I launch TeamBuildr at the beginning of the first class of the semester, thus creating a primacy effect. First, I create teams of 5 to 7 students, which creates a primacy effect. The strong primacy effect occurs because students expect the first day to be a review of the syllabus. These teams are permanent and they will complete an additional ten in-class team projects during the semester. Because the teams have continual interaction, they can experience the stages of teamwork over an extended period. These activities are experiential and the ongoing nature of the teams allows repetitive learning opportunities.

Many companies and professors use a Legos activity for an icebreaker (see for example Toastmasters Lego Man). Many state that a Legos activity can help teams with innovation, creativity, teambuilding, and leadership. Colleagues continually ask to borrow my Legos for such purposes. At the polar end of the scale, there is a high-end process called Lego ® Serious Play ®**.** "Meaningful" usage relies on a trained Lego ® Serious Play ® facilitator (see seriousplaypro.com)**.** Training is four days and costs seem to be around $3,000 plus expenses. The starter kit for Lego ® Serious Play ® is *seriously* expensive and in my opinion, is not targeted for HE. My point is that using Legos for an icebreaker or adapting the Lego ® Serious Play ® are not appropriate for effective teamwork training in HE. Further, the process is not affordable for the typical academic; moreover, despite the popularity of using Legos for group activity, there is little in the academic research regarding the efficacy of the current usage of Legos in HE classrooms.

I adapted an exercise that I believe charges team building based on Tuckman's stages of team development. My iteration is not expensive—certainly as calculated over the lifetime of the Legos. For example, I use the Classic Yellow box of Legos (one box for each team) which is a common item and can be secured from a variety of retailers.

TeamBuildr begins with the teams gathering in their assigned groups. Each group has a big yellow brick box of Legos. I tell them that the winner of the Lego activity will receive extra credit. I invite one member of each team to join me in the hallway. I tell them that they belong to a tower building company. I task each to communicate back to their group that their task is to build the tallest freestanding tower. They may only use the Legos provided as material. Most importantly, I provide some instruction about team forming and I always give the adage that "you are building teams and towers".

After about 10-15 minutes, I ask each group to send another person join me in the hallway. I alter the instructions in such a way that the teams must refocus their efforts on a different task. I usually tell them that they company has be acquired by a bridge-building company and they must now create the longest standing bridge instead of a tower. The new "leaders" must go back and explain to the team that everything is now different—this creates more storming and a realization that the team needs to deal with conflict in order to succeed. After a period, I give a third member from each group another change in the process that they must implement and so forth. At each interaction, I tutor the team on teamwork as needed. In the final iteration, I tell the representative that the "merger" fell through. I tell them that must build the tallest freestanding tower again. Finally, when time runs out, towers must stand for 1 minute. Each team seems proud of their work and they all seem to have enjoyed the activity. In a friendly, but competitive manner, the winner team is awarded extra credit. They then exchange information to prepare for the variety of interactions during the semester.

Ongoing team activities

Each week during class, the teams meet as a group to work on a new assigned task. This repetition of working within a static group replicates the workplace as much as possible. These tasks consist of activities that are completed during the class period and are based on the current subject matter. For example, the teams are assigned to create a job analysis, resume, mind map, or perhaps an interview guide. I base the tasks on the learnings offered during the week and on pre-class readings. Most of the tasks involve presenting the final product to the other teams. While they are working on the tasks, I tutor and mentor them on teamwork and task work.

Final project

During the entire semester, the teams also work on a presentation explaining a key concept related to their course of study. I require each team to give an integrated presentation during the last few weeks of class. They must work closely together to cover the topic completely and without repetition. They present as a team much like an integrated newscast or workplace presentation. Each team member prepares their own section of the presentation and each presenter is limited to 20 slides of 20 seconds per slide.

At the end of the semester, when the teams Adjourn, I debrief them on the semester's teambuilding process. I stress importance of teamwork in their future careers. I encourage them to use the Tuckman model to explain their teamwork skills during interviews and to use the theory in practice during their careers. Each semester teams invite me an Adjournment team party at a local hangout. As a professor, I find personal and career satisfaction in knowing that I influenced the pattern of behaviors that led to an Adjournment party.

SURVEY METHOD

At the end of a semester, I surveyed students about their perceived learning and utilization of teamwork skills. I gave students extra credit for their participation. The questionnaire was created in Qualitrics and included 25 questions. The survey took the students an average of 10-15 minutes to complete. Anonymity was protected by forwarding students to a second survey upon completion of the survey questions. In this second survey, the students recorded their names so that I could award them extra credit. The anonymity of this process was clearly explained to the students so that they could answer honestly and openly.

The sample was recruited from two Human Resources Management and one Recruiting & Selection class from a mid-sized regional university in the northeast of the United States. The recruited sample included 98 students of which 92 participated for a response rate of 94.84%. The average age of the sample was 21.73 years (*SD*=2.83) and 45.65% were women. The sample consisted of 86.96% Caucasian, 10.87% African American, 1.09% Asian, 9.78% Hispanic, and 1.09% "other". Most of the students (91.30%) were business majors and 6.52% were psychology majors. The remainder (2.17%) chose "other" as their major. Freshman made up 0.00% of the sample with sophomores at 1.09%, juniors at 35.87%, and seniors at 63.04%. A summated rating scale with 5 points (*Strongly Agee* to *Strongly Disagree*) was used to capture the answers to the questions regarding the teamwork experience.

Results

Survey results indicate that students generally enjoyed the teambuilding process even when they had initial doubts about the amount of teamwork involved during the semester. However, the more important question from a pedagogical perspective is whether the class learned teamwork processes and skills -- and the importance of the teamwork competency in their careers.

Participants (85.97%--Strongly Agree/Somewhat Agree) indicated that they understood the Forming stage and agreed that they experienced it. A majority of the participants (92.39%) indicated that they understood the Storming process and only 18.48% believed that they skipped Storming. A majority (83.70%) indicated that they understood the Norming stage and began to perform better during this phase. Participants also agreed that they entered the Performing stage as a group (89.13%). Of those participating, 92.39% believed that specifically, during the last phase of Teambuildr that they understood and were in the Performing stage. The participants agreed (90.21%) that the TeamBuildr activity improved their ability to perform in the ten class team-building activities and furthered their understanding of teamwork. Most of the students agreed (88.04%) that experiencing TeamBuildr as the first activity improved their abilities to work as a team throughout the semester. Also, 89.13% agreed that the final debriefing of teamwork improved their knowledge of the teamwork process, while 93.48% agreed that the knowledge about teamwork gained during the semester learned with the TeamBuildr, class activities, and presentations improved their understanding of how teamwork applied to them in the workforce. With respect to overall knowledge, 96.74% agreed that their overall knowledge of teamwork

improved during the semester, and 83.70% believed that they had reached the Performing stage as they prepared and delivered their PechaKucha presentations. Finally, only 54.35% indicated that other classes helped them understand teamwork at some level.

The last survey question asked for general comments about the process. The survey question was "Please comment on you learning experience with respect to your journey in working in teams this semester. You could mention any of the phases (Forming, Storming, Norming, Performing, and Adjourning), how they affected the ten in-class activities, and how they might have applied to your final presentation."

One student noted how the Lego activity helped start his group Forming:

> *The first Lego activity was particularly helpful in forming. I feel as though I got a good impression of how people function in teams, and we were able to talk to each other even if we didn't know each other. The fact that we had activities that we could work on together throughout the semester helped us connect better for the presentation. That connection allowed us to help each other more with the presentation, feel comfortable working outside of class, and function as a group.*

Another student mentioned that the overall team process helped him or her to understand that each person has their own style and acceptance of their differences was critical:

> *I learned that each and every person has their own style of completing tasks and projects, as well as having different ways of communicating to one another. Our team was all women, all with different backgrounds and personalities. I will say the storming and norming stages were the hardest to get through.*

Additionally, this student response indicated that they understood and remembered the stages which helped them to build a stronger team:

> *This semester, my group progressed through all four stages. However, there wasn't any real conflict. We overcame any confusion as a group. The forming stage (Lego activity) really helped us come together as a team, and feel like we were working towards a collective goal. The other activities allowed us to have fun as a group and get to know each other, all while learning the course objectives.*

Additional responses are listed in Table 1.

CONCLUSION

In the increasingly competitive employment market, HE students need to possess both technical and soft skills, especially teamwork competencies when they interview. Our graduates must be possess skills that will set them apart in a crowded job market. To meet the challenge, HE innovative learning processes are needed (Axley & McMahon, 2006). The integrated process described in my paper is based on sound learning theory can provide teamwork skill development in a variety of classroom settings. Teamwork is taught via an ongoing jigsaw type learning process that develops throughout the semester. These skills are reinforced by using mnemonics, experiential learning, primacy/recency, and repetition. The integrated assignments provide a natural learning progression for the permanent teams to learn teamwork skills. The in-class activities provide real world processes and actual group development that they will experience when entering the workforce. The process could be viewed as messy and complicated, but so is teamwork in the workplace.

My study results indicate that by using the integration of foundational teaching theories of mnemonics, experiential leaning, primacy/recency, and repetition, HE students can gain a useful

understanding of teamwork skills. Selection of the universally accepted teambuilding model developed by Tuckman (1965) and Tuckman and Jensen (1977) facilitates the learning process. Through use of static groups, TeamBuildr, in-class team activities, final presentation, and debriefing, the teamwork skills of HE students can be substantially improved. Another tangible result is that the process can apply to most HE classes by incorporating their syllabi content into this process.

Future research could overcome some limitations of my study. This self-report questionnaire was distributed only to students. Future studies could include surveys of hiring managers who interviewed students graduating from a class in which this process was delivered. Additionally, these students could be surveyed after they left HE and entered the workforce. Further, separating the learning theories for an experiment that used only one theory one per class, would be informative.

My results provide a process indicating that teaching HE students teamwork can be effective. I teach the teamwork competency based on foundational learning theories including mnemonics, experiential learning, primacy/recency, and repetition. Since organizations consider teamwork to be the most desired competency for hiring, teaching effective teamwork skills is critical. Since the empirical literature has little research on instructing teamwork, I have endeavored to provide a greater understanding of an engaged learning process to improve HE student teamwork competencies--which is desirable for both schools of higher education and potential employers.

TABLE 1
STUDENT COMMENTS FROM SURVEY

When working together in the beginning stage of storming our team didn't get along very well but as we got to know each other and trust each other more we were able to work together and give a good performance for our final presentation.
I got close to my team mates, which made me personally break out of my shell and learn to work with others
My learning experience changed dramatically. Since I had already met and knew some of my team members it was already settled who would do what and what job role they had. I was the "mom" made sure everyone was on task and helped out if others did not quite understand. Our group skipped the forming phase because of this and jumped straight to the storming and norming. After that we created a new phase called absorbing because we used our previous knowledge of the materials and professor to gain a better understand of where we stood as a whole. Thus pushing our way to the mourning stage, i feel we grew stronger as a group and built a strong foundation for years to come. We say hi to each other outside of class and even talk to each other on group chats still. So i think our friendships will continue to grow stronger, because of this.
When my group first got together, everyone was shy because we didn't know each other's personalities yet. However, through forming, storming, and norming, and accepting each other's qualities and flaws, we were able to work together well throughout the semester and on our final presentation.
Tuckman's model was apparent in this class especially because we were in teams almost every class. Ive learned how to correctly identify different roles in a team, and respect others while cohesively working towards a common team goal.
After the presentation we became a lot closer and plan to continue our friendship on after the end of the class

great learning experience, loved the forming of the class from the beginning of class until now, as well as the way the professor taught each and every class
I learned how the stages of a team form and got to watch us change from strangers to teammates.
I noticed another phase in between the norming and storming phase I like to call absorbing. This is due to the fact the half of my team was already formed and had norms established while then having to bring in new members.
I believe that our group created a bond that started off on the first day from the Forming Lego activity. We Performed in the Petcha Kucha
I liked how instead of ice breakers we got right into it and our groups immediately became comfortable with each other making it that much easier to get our work done.
Working in teams this semester definitely allowed me to work better in groups and I will definitely use all of my experiences that I've obtained here in this course in my career moving forward.
When it came to the group work in this class, I believe that it was so successful for two reasons. The first reason is because of the lego exercise. Although I didn't realize it at first, I realized that This class, I felt like I was on a journey with my team. From forming groups the 1st day of class, we were immediately forced to get to know each other and work together. As the weeks went on and group work continued, we got closer and closer. We would talk on a regular basis and made the final presentation a lot easier. I credit this class to the group I was in.
I think that every activity we worked on as a group in class took a different approach to the 4 phases and got us through every one as a group. I am glad we got to learn about these different phases and also glad we were able to work in the groups to get through every assignment and project together.
Not going to lie, on the first day of class when you said it would be a group based class I was not happy. I ended up being great friends with my group and I think choosing to wait until the last lecture to teach about groups was perfect.

Note: Student comments were not altered to fix grammatical or spelling errors.

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