How Do I Feel When… A Card-Based Communication Game to Stimulate Empathy Among Family Members with Anorexia Nervosa

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Abstract. Today, games play active roles in diverse stages of the treatment of various mental illnesses. Despite this favourable context, their use as tools in the treatment of anorexia nervosa is still quite unexplored. We are developing playful and gamified tools that can be used as instruments in the prevention, treatment and monitoring of this complex disease. The objective of this paper is to present the initial process of design and development of a card-based game called How do I feel when… Its purpose consists of stimulating empathy among family members of patients with anorexia nervosa. Play sessions are to be mediated by health professionals and are supposed to occur in the context of support and therapeutic groups for family members of people suffering from eating disorders or in clinical consultations. Preliminary tests and expert reviews showed that the game is effective in establishing free association of subjects in players’ reasonings, and in inciting the externalisation and sharing of players’ feelings. It also demonstrated that, because players usually read the cards in accordance to their life experience, the game is able to circumscribe and personalise the subjects to be discussed.

Keywords: Game design · Card games · Affective communication · Empathy · Anorexia nervosa
1 Introduction

Games are a cultural phenomenon that keeps on involving more and more people of all ages around the world that commonly devote much of their time playing in a free and committed manner [1–4]. This type of dedication that games promote in people is an alert for their potential applicability in areas besides entertainment. It is the playful and motivational character embedded in games that is able to promote human potential, to mediate effective interventions in learning in healthcare, and in contributing to the promotion of quality of life and well-being [5, 6].

The use of games in health contexts is an emerging area of research and development, as well as the realization that these can be used in the treatment and recovery of patients in clinical contexts [1, 7, 8]. In this context, we can point out several studies with games that focus on: teaching and training of medical teams [9, 10]; physical rehabilitation of people with cerebral palsy [11]; self-management of chronic diseases, such as cancer and diabetes [12–14]; emotional regulation to help children and adolescents manage anger [15]; improving strategies to promote the autonomy of people with disabilities [16]; reducing stigma in relation to mental illness in adolescents; promoting health literacy [17]; among others.

It is in this sense that game design for mental health is becoming a rapidly expanding area and focus of research, as games provide experiences for behaviour change in health in a more engaging and enthusiastic way than other tools [1]. According to Lindsay Grace, “if a player can do something in a game, he may be able to do it outside the game” [4]. This ‘something’ can be related to anything. When we talk about the use of games for mental health, game systems have been conducive in the involvement of both patients and families in the treatment of mental disorders [20]. Like so, today, game design already plays an active role in the treatment of various mental illnesses. Games designed in this sense have been, for example, able to enable cognitive rehabilitation of people with schizophrenia [18]; serve as tools for the treatment of alcohol, drug and tobacco addictions [19–21]; help in self-control of anger and impulsivity [15, 22]; act as means of early detection, treatment and monitoring of dyslexia [23]; promote learning and recognition of emotions in people with autism [24]; among several other issues.

Despite this favourable context, the use of games as tools to support monitoring and treatment of mental disorders is still quite unexplored in the context of treatment of anorexia nervosa. There are few playful resources [25, 26] that contemplate the complexity and specificity of the disease. It is to bridge that gap that, in our research, we are developing playful and gamified tools that can be used as instruments in the prevention, treatment and monitoring of this disease [27–29].

There is a wide range of actors involved in the process of treatment and recovery from anorexia nervosa, namely patients, family members and multidisciplinary clinical teams. During a field study, we observed that verbal communication is the main means for obtaining information from the medical team about the emotional states of patients and family members. During some family consultations, we found that the level of
stress and anxiety of the participants\textsuperscript{1} in such meetings is high. We also found that, although the disease directly and indirectly affects all members of the family, such sessions are frequently dominated by the relative with the highest level of expressed emotion, ultimately reducing and undermining the opportunity for other family members to express themselves. Additionally, we found that health professionals reinforce the need for the practice of empathy on the part of family members, so that everyone can work together towards the recovery of the patient.

It is precisely in this context that this article is focused on. It presents a card game called \textit{How do I feel when...} that aims to encourage empathy among the family members of the patient with anorexia nervosa through communication. It is a game to be played mediated by health professionals in the context of therapeutic and support groups for family members of people suffering from eating disorders or in clinical consultations.

\section{Affective Communication}

Etymologically, the word ‘communicate’ means “to pool, to share, to exchange opinions, to conferenciate”\textsuperscript{2} [30]. Communication is a relational action in order to transmit messages between a source and a receiver. When these roles (source and receiver) alternate, a dialogue emerges, in which the objective is to exchange information for the construction and/or expression of opinions [31]. Communication is part of human nature. We are social and communicating beings [32]. Through communication, we reveal our emotions, express our feelings about things and events, about other people, and about ourselves [33].

Affective communication is the action of communicating with or under the influence of emotions or expressed by feelings from a stimulus, which can be internal or external [34]. According to Damásio, emotions and feelings are essential to activate the intellectual and creative process [35], with emotions being involuntarily reactions in our body, and feelings the result of one’s reasoned perception or of being aware of an emotion. Emotions, which can be positive or negative, live in a physiological field, and we cannot control them willingly. And feelings, due to their nature, may not be expressed because we have a little more control over what we are feeling [36].

In the usual context of family consults throughout the treatment of anorexia nervosa, it is important for family members to speak their mind, to express their feelings and to share their emotional states [37]. However, in some situations, it can be difficult for them to externalize, to listen, and to understand each other – usually the most stressed, nervous, or anxious ends up monopolizing the session. During field work, we realized that affective communication in this context can be stimulated by external means, such as games. These are able to offer means by which everyone feels engaged.

\textsuperscript{1} For more information about family behaviours and reactions that may occur when a family member has an eating disorder consult Treasure et al. [48].

\textsuperscript{2} Authors’ translation: “pôr em comum, partilhar, trocar opiniões, conferenciar” [30].
in dialogue and in which the exchange of information and opinions is built collectively, fostering empathy between family members.

Empathy is essential for humans to build relationships, to collaborate and for one’s personal growth [38]. According to Barker [39] and Krznaric [40], empathy is defined as the ability to put ourselves in the ‘other’s shoes’, i.e. when we are able to know, to understand and to experience the thoughts, ideas and emotional states of another person. Stephan and Finlay [41] discerned between cognitive empathy – the ability to recognize emotions and intentions in others – and affective empathy – the ability to understand others’ feelings and to react with the appropriate emotion to what they feel or think. In the context of a group, cognitive empathy assists in the acquisition of knowledge and in understanding the point of view of the members that belong to that group. It is effective in changing stereotypes by transforming the intelligible into understandable. Affective empathy refers to the emotional responses towards another person, in other words, a reaction to another person’s emotional experiences. Affective empathy can be labelled as sympathy or emotional empathy. In sum, empathy enables sharing of experiences and helps in the identification and understanding of how others feel [42]. Being empathetic implies an effort to imagine oneself in the place of another. This capacity reveals then an extraordinary potential for social change [40].

3 Games for Affective Communication

Games possess the ability to build and reinforce important communication skills in their players [43]. Since it is common for players to role-play, to explore, to challenge other players and themselves, games can assume a pedagogical role in dealing with conflicts. Players are able to gain autonomy and to challenge their personality through fiction [3], which in itself can constitute a rehearsal for their ‘real life’s’ own conflicts and challenges. That is why games can also be motivational tools for building, enhancing and/or improving skills in which a person can take risks and do things she would not or that would be impossible to accomplish in real-life or in a non-ludic environment [44]. It is by developing these ‘safe environments’ that games are able to behave as motivational vehicles for communication, becoming a ‘take to action’ that helps in breaking communicational barriers and in bringing people together [45].

An example can be found in The World of Empa5 (2012) a game to enhance sensitive and empathic reactions between characters with and without physical disabilities [46]. In this game, cognitive empathy is activated by experimenting with situations that promote positive emotions that help the player in recognizing what a particular character in the game may be feeling. The game’s reward system favours feedback on affective empathy because it reinforces an appropriate emotional reaction.

5 The World of Empa is a cooperation project between Bartiméus (www.bartimeus.nl), Vrije University Amsterdam, Clinical Child and Family Studies (www.psy.vu.nl) and Metropolisfilm (www.metropolisfilm.nl). URL: www.theworldofempa.org. Date of access: 2020/06/30.
for the situation in effect. Another example is *Knowing You, Knowing Me*\(^4\) (2014). It is a game developed to foster positive communication between mothers and their daughters during the transition period between childhood and adolescence through gamified interactions based on a social network format [47]. Here, affective communication is mainly activated through the mediation of a virtual character that presents particular situations to players and invites them to emit their opinion about those, in a relaxed environment. Both cognitive and affective empathy can be motivated through the chat tool, through which players are invited to publish their views and thoughts. In addition, they are encouraged to combine activities together in real life (see Fig. 1).

Today, we are seeing that games focused on promoting affective communication are already being developed outside of the scope of clinical and academic research environments. For example, *Dixit* (2008), *Ikonikus* (2013) and *Snak* (2016) are commercial games that explicitly mention the ability to foster communication and the expression of the players’ feelings in their promotional speech. *Dixit* (2008) is a narrative-based game in which a narrator tells a story. To do that, the narrator chooses a card to base her story upon. The goal consists of players finding out what the narrator’s card is during the story. Although free communication and interaction between players are strong points in this game, affective communication and empathy are not encouraged by the game’s mechanics but are left to the players’ themselves. *Ikonikus* (2013) is a card game that aims at its players expressing their emotions. The game starts when a player chooses a subject that involves a disclosure of feelings or emotions. The remaining players must choose a card from their hand with which they are able to respond to the issued subject. In each round, only the player who issues a subject is able to share a story, providing no opportunity for others to express themselves during another player’s turn.\(^5\) *Snak* (2016) is a game that aims to train empathy and stimulate curiosity players through conversation mediated by illustrated cards. The interaction between players is intensified when sharing stories. Whoever is telling the story can only be interrupted with questions that spontaneously arise from the players’ own curiosity. This curiosity is a good trigger for promoting communication that can activate cognitive empathy.\(^6\)

The ludofictional\(^7\) environment that games like these promote helps in the development of communication skills and in the construction of narratives by their players, giving them a sense of safety to talk about what they feel. Such games also motivate

\(^4\) *Knowing you, Knowing me* has funding support from Queensland Health, DRUG-ARM Australasia, auDA Foundation, Drink Safe Coalition, Sunshine Coast Youth Partnership and Project support from the following organizations: Various Artists and Virtual Obsession.

\(^5\) For affective communication to take place, we believe it would be important for players to justify the reason for their choice at the end of each round. That way, players could have more opportunities to communicate empathetically and to express their feelings.

\(^6\) To trigger affective empathy the game would need other components (e.g. additional material with information) to help players elicit deeper emotional responses in each other. Although the cards offer a context, no guidance is given as to the creation of stories that may have the intended potential.

\(^7\) “A ludofictional world can be defined as a system of connected possible worlds that generates a game space determined by fictional content and closely related rules.” [49].
their players in breaking communication barriers and thus to be more receptive towards each other’s emotional states – a fertile ground for promoting empathy.

4 How Do I Feel When…

The game we created aims to promote affective communication and foster empathy between patients and family members in the context of the treatment anorexia nervosa. The game’s mechanics favour actions for players to express their feelings – the basis for affective communication to take place. In this sense, by playing, family members have the opportunity to share and expose what they feel about a particular subject. From the clinician’s perspective, this game is a tool aiming at promoting an alternative environment in the context of the usual clinical consultation. It aims at guaranteeing the balanced opportunities for all participants to express themselves, within their specific turns to speak and to listen, therefore avoiding monopolisation of time and speech, with the consequent aim of reducing stress among the participants.

The game allows the collective exercise of empathy because players have to put themselves in each other’s place at each round. In this game, cognitive empathy is encouraged by making players guess how another player feels about the subject she previously chose. Affective empathy is encouraged through the confrontation of each player’s reflections and externalizations about the real feelings of the player that issued the subject or topic. This aims to help in developing an understanding and in establishing an appropriate emotional reaction in players. In addition, the fact that the experience of the game is mediated by a mental health professional is aimed at instigating sentiments of safety and security in players for them to express their feelings as they normally would in a regular clinical session.
Up until now, we built two prototypes of the game and conducted preliminary tests to validate gameplay with adults and children from the same family, and ourselves (see Fig. 2). These tests helped us confirm that the game’s cards should discard text or words and resort solely to illustrations to allow free association of subjects to take place in players’ reasonings. We understood then that such kinds of triggers could stimulate players’ interpretation, personalising the subjects or topics that from there emerge, as well as avoiding the possibility of bias or directing players’ rationales, arguments, premises, or expressions. During tests, we also realized that the game’s mechanics should be simple and quick to understand since the time allotted for clinical consults is limited.

The game consists of 60 paper cards, divided by 5 equal decks of 12 figure cards each (see Fig. 3). Each figure-card has an illustration that serves as a stimulus for developing a subject/theme or type of response.

*How do I feel when...* is a game for a minimum of 2 and a maximum of 5 players and is to be mediated by a mental health professional. The rules of the game are as follows (see Fig. 4):

1. The decks of cards are distributed among the players. Each must have only one deck with 12 figure cards in their hand.
2. A player chooses a card from their deck and asks a question out loud based on their interpretation of the said card. The question must always start with “How do I feel when...”, such as: “How do I feel when... I’m having family dinner?”
3. At the same time, the player must put the selected card face down on the table, close to him/her.
4. Afterwards, the other players must choose a card from their own decks that they believe represents how the first player feels, taking into account the question they heard, and place it face down on the table, close to them.
5. After everyone has chosen their cards, players must turn face up their card and justify their choice, by turns.
6. After every player has completed their turn, the first player reveals their card and talks about what he or she really feels.
7. At that moment, the health professional starts a new round, indicating the another family member to issue the next question.
8. The game ends when the mental health professional finds it to be suitable.
9. There is no winner, nor loser in this game.

Expert reviews were conducted with a sample by convenience of 2 experts in mental health experienced in family consults – two professors and researchers in Psychology, in which one is also a doctor in Design and the other is experienced in the treatment of families that face chemical dependency and eating disorders; and 2 experts in game design – one professor in Game Design, Technology and Digital Media, and one game developer and entrepreneur in retro games.
Fig. 2. Initial sketches on the left; first prototype on the right.

Fig. 3. On the left: Sample of cards (top and middle – front; bottom – cover). On the right: Playtesting session.

Fig. 4. Storyboard of gameplay mechanics.

1. The cards sets are distributed among players.
2. The patient chooses a card, formulate a question, and state it out loud, using “How do I feel when...?”.
3. The other players choose a card that represents how they think the patient feels from his/her card set and put on the table with face down.
4. The next player places the card face up on the table and explains — the reason for his/her choice.
5. Other players must do the same in their round.
6. The patient reveals his/her card and talks about what and how s/he really feels.
7. The health professional can provide feedback and start a new round or end the game.
The goal of these sessions was for them to assess the game’s primary goals and issue suggestions for improvement. The sessions were conducted remotely, through an online platform (Zoom). The audio was recorded and later transcribed. They were conducted with one specialist at a time, with the average duration of one hour. Each session was divided in three moments:

a) a brief exposition of the goals of the session and of the rules of the game (10 min);
b) a moment in which the experts played the game with the interviewer/researcher (20 min);
c) a moment in which the experts were invited to orally and freely assess their experience and the game, regarding its goals in promoting affective communication and empathy within the family/players (30 min). They also assessed the game’s suitability to the context of the intervention (family consults), and if they would use it in their jobs (in the case of the mental health experts).

The results of their assessment are displayed in Table 1. By means of this expert feedback, we can see that How do I feel when... possesses the necessary mechanics and dynamics to achieve its main goals in terms of affective communication and empathy among family members. Expert reviews showed us that:

- the simplicity of the game’s mechanics was perceived as very positive in promoting communication within the family;
- it could help set in discussion issues that the family normally does not feel safe to openly discuss, or with members outside of the family;
- the paper cards were perceived as a facilitator and inclusive format for players with different backgrounds;
- since family members have different ages, this card-based format does not demand previous knowledge to be played;
- game was viewed as a useful tool for the health professional, mainly as it creates an engaging moment during the consultation, breaking down communication barriers, making people feel more at ease, and making everyone play at the same level;
- the game’s dynamics favour the family’s emotional dialogue and promote empathy.

As such, we realise this initial stage of design and development to be concluded. We can now proceed to the next stage of adjustments and tests with users.
### Table 1. Observations and suggestions for improvement by experts

| Mental health experts | Game design experts |
|-----------------------|----------------------|
| **Key-statements** | **Key-statements** |
| “This game fulfills in a simple (not simplistic) way a very complex demand. You can quickly see how the game works and the added value it brings to the realm of family dynamics within such a serious problem.” (Expert 1) | “The concept of the game is well built, and you can easily understand its mechanics. The simplicity of the game can encompass the complexity of the context. I believe that it can foster the empathy of family members mainly through the themes that they can suggest during the dynamics.” (Expert 3) |
| “It promotes empathy in themes that can be hard to deal freely during the conventional consults and, mainly, promotes communication within the family group. Considering that family dynamics within anorexia nervosa have serious communication problems, this game directly and positively addresses this challenge.” (Expert 2) | “The game is simple, but powerful. I believe the health professional can have access to a lot of information from family members, perhaps even more information than the family normally reports in conventional consultations.” (Expert 4) |
| **Observations** | **Observations** |
| – The game favours cognitive empathy by proposing a shift in perspective in its players about the subject in discussion to ease what their family members (other players) are feeling | – The game fulfills its purposes because its mechanics promotes a kind of dialogue in which players must respect the space and the time of each other’s speech |
| – The game promotes affective empathy and eases the family’s emotional education by opening a space of revelation about subjects and feelings that is not common to happen within the usual family routine | – The kinds of figures in the cards are already used in other contexts (signage, airports, etc.), which helps in establishing their meaning, regardless of players’ ages |
| – The game’s dynamics promote the emotional insight of the players about themselves and others, which, according to them, can be a way to increase the chances for changes in their behaviour | – The fact that only figures are used in the cards (without letters or numbers) can be a positive factor for the use of this game by professionals in different countries who understand this type of language |
| – The game promotes communication within the family and discussion based on empathy about subjects that can be hard to be discussed in the context of a conventional consult | – The figures help players create links between subjects that may emerge during gameplay and, with that, promote useful insights about the family members, for themselves and for mental health professional |
| – Creates a favourable context for assessing the family dynamics of their patients, helping the mental health professional understand the roles of each family member, how they interact with each other, and their power relationships | – The pastel colours selected for the decks are not aggressive and do not favour common kinds of bias at the time of choice (e.g. colours of a football team, colour commonly associated with gender, etc.) |
| – The possibility players have to issue the subjects to be discussed was seen as very positive | – Being constituted by a deck of cards facilitates the game’s mass production and handling, because they are small, portable, and easy to carry by the mental health professionals in their routine |
| | – The experience of playing during the consultation can be seen as a modernization of therapy sessions, in which playfulness may help breaking down communication barriers and make people feel more at ease, removing the focus off a single person. Play can also create relaxing environment, removing the natural tension that happens in this context |
| | – When seen as a positive experience, playing during consults may help families return to consults and, in consequence, adhere to treatment, because it may transform the office into a more leisure or carefree-like space |
| | – This game has a simple card format and equally simple mechanics (without the need for other elements), which helps players in quickly understanding the rules, saving time for play |
| | – The undefined time of play is positive because it allows the mental health professional to be free in how to obtain information from the players, and in how long to take in doing so |

(continued)
| Suggestions | Mental health experts | Game design experts |
|-------------|-----------------------|---------------------|
| – Insert a blank card in each deck of cards so that players are able to freely express themselves — writing, drawings, etc | – In order to help players be more secure, comfortable and prepared to issue questions, it would important to recommend the mental health professional (in the instructions’ manual) to explain the rules of the game to the family and to make a test-round before starting the actual game session |
| – Create the chance for other players to be able to discuss the answer of each player in stage 4. This discussion should be mediated by the health professional so that it does not deviate from the subject in discussion, and to manage its duration | – It may be relevant to alert the mental health professional that is mediating the game to be attentive to the time it takes players to answer the question in order to avoid the monopolization of time by particular players |
| – It should be stated in the rules that, in the cases players are not able to initiate or propose a subject, the health professional should be able to assist them, in order to avoid breaking the flow of communication and players’ motivation to keep on playing | – To avoid subduing players to their family hierarchical structure when they are trying to reveal something, the mental health professional should be instructed to decide the order of play, instead of what is customary for each family – e.g. clockwise or reverse |
| – In order to help players be more secure, comfortable and prepared to issue questions, it would important to recommend the mental health professional (in the instructions’ manual) to explain the rules of the game to the family and to make a test-round before starting the actual game session | – Double the number of pictures in the deck as a resource for the mental health professional to select the 12 figures that compose the decks in each session. This would also prevent the game from going into disuse in the long run |
| – In order to help players be more secure, comfortable and prepared to issue questions, it would important to recommend the mental health professional (in the instructions’ manual) to explain the rules of the game to the family and to make a test-round before starting the actual game session | – There could be another way to play this game: the mental health professional could direct the speech of a certain family member resorting to a predetermined sequence of cards. This could be useful to observe the reactions of the family in the situations that emerge from that particular sequence of cards |
| – In order to help players be more secure, comfortable and prepared to issue questions, it would important to recommend the mental health professional (in the instructions’ manual) to explain the rules of the game to the family and to make a test-round before starting the actual game session | – The mental health professional could have a card he could play (by setting it on the table) to signal that the time to talk is over and that it is now time to listen (or vice versa) |

\[a^\text{Authors’ translation: “Esse jogo cumpre de forma simples (não simplória) uma demanda muito complexa. Percebe-se rapidamente como o jogo funciona e as mais valias que traz para o âmbito da dinâmica familiar dentro de um problema tão sério.”}\]

\[b^\text{Authors’ translation: “Propicia a empatia em temas que podem ser difíceis de serem abordados de forma livre dentro da consulta usual e, principalmente, promove a comunicação dentro do grupo familiar. Tendo em vista que a dinâmica familiar dentro da anorexia nervosa possui sérios problemas de comunicação, este jogo atende diretamente e de forma positiva esse desafio.”}\]

\[c^\text{Authors’ translation: “O conceito do jogo está bem construído e você consegue entender facilmente sua mecânica. A simplicidade do jogo consegue abranger a complexidade do contexto. Acredito que possa fomentar a empatia dos familiares principalmente pelos temas que podem emergir durante a dinâmica”}.\]

\[d^\text{Authors’ translation: “O jogo é simples, mas poderoso. Acredito que o profissional de saúde possa ter acesso a muitas informações dos familiares, talvez até mais informações do que a família normalmente informa nas consultas convencionais”}.\]

\[\text{“The concept of power relationship is differentiated from control attempt, control, resources, and authority in the marital and family relationships. More information in Rollins and Bahr [50].}\]
5 Conclusions and Future Work

Affective communication favours empathy since it helps to better understand the emotional state of others and their reasonings, providing emotional support in a positive way. In the scope of the treatment of anorexia nervosa, the game we designed acts as a playful tool for clinical intervention to help patients and their family members understand each other’s affective states, feelings, and emotions. It has the central objective of facilitating communication between patient, family members and mental health professionals.

As a work in progress, in the path towards the consolidation of a product for mental health, we appointed the following future work:

1. **Deepen the conceptualization of images applied to cards, according to Jung’s Theory of symbols and archetypes.** Along the development of this game, we realized that the images on the cards are the basic element for instigating communication and interaction between players. To improve this, we intend to deepen our knowledge about Carl Jung’s work in the scope of psychoanalysis, namely on the aspects of symbology and archetypes. This could help us develop images better suited to fulfil their goal.

2. **Explore the suggestions issued by the experts towards the development of the next version of the game.** The suggestions will be discussed and tested by the team, mental health professionals and recovered patients. New iterations of the game will result from such scrutiny, and only then will the game be tested with patients in treatment, as suggested in point 3.

3. **Test in a real environment, in the context of family clinical consultations in the treatment of anorexia nervosa.** A third version of the game will be tested in a live environment, with health professionals carrying out such sessions with the target audience. Data from non-participant observation will be collected during sessions, and health professionals, families and patients will be interviewed if/when necessary and possible, depending on the severity of the cases.

4. **Work on the cards visual design.** We resorted to icons in these prototypes. Although preliminary tests returned positive outcomes regarding their interpretation on behalf of the players, the cards’ visual design needs to be further explored and tested with the target audience in the next phase of development.

We believe these four tasks will help *How do I feel when...* progress on its way to become a suitable tool for mental health professionals in anorexia nervosa to work with, in the scope of their already established clinical procedures, and to promote positive and constructive dialogue during patients’ family consults.

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8 Due to the established COVID-19 precautionary measures, this task is for now set for future work.
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