



Learning in IF...

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This document seeks to provide insight on the learning game IF... and covers the following topics:

1. a description of the tool and its goals;
2. the research base for several of the foundational learning principles behind the game and its design;
3. a description of the Social and Emotional Learning content used to inform in-game learning;
4. how that content is delivered through the game medium; and
5. how our interdisciplinary team seeks to assess learning with the tool.

This is a working document much like IF... is an iterative, “in-progress” tool. It will be continually updated to reflect progress and changes on our game.

I. IF... : A Description of the Tool and Learning Goals

IF... is a video game that seeks to build a child’s emotional intelligence. There are several definitions of the term emotional intelligence, dating back to Peter Salovey’s seminal work on the subject in 1990. Oxford defines the term as: “the capacity to be aware of, control, and express one’s emotions, and to handle interpersonal relationships judiciously and empathetically,” (“Emotional intelligence,” 2013). Although this definition suffices as a broad-stroke understanding of the term and therefore the goals of IF..., IF... seeks to build a far more robust and granular set of skills in the child/player.

Our game introduces, reinforces and assesses a recognized canon of Social and Emotional Learning (SEL) skills. In addition to building emotional intelligence in children, these skills have been proven to “be important predictors of students educational attainment, employment, wages and risky behavior,” (Heckman, & et al, 2006).

IF... is a single player, role play game. The player is immersed in an interactive movie-like experience in which in-game characters and real-life relevant situations are used to provide learning opportunities. The player must continually make choices around both dialogue and actions as she moves forward in the game. It is largely through these choices – which are assessed against a specific set of 20 Social and Emotional Learning goals – that we are able to



gauge what, how and at what pace the child is learning.

Although not included in the preview version, the IF... game platform also includes an app for the parent. The app will feature a dashboard that provides information to the parent in order to support and empower them to engage with the child around what the child is doing and learning in the game. This app will do the following:

1. share information about the game narrative and the child's experience in each chapter;
2. offer non-pedantic, easy ways to dialogue with the child about what she is learning in the game, and how that learning might apply to real-life situations and challenges; and
3. arm the parent with additional fun activities and resources to bring SEL into the home.

As Social and Emotional Learning is comprised of both skill building and creating a safe, supportive climate, the IF... parent app plays a critical role: it allows for the creation and sustenance of a *nurturing home climate* by supporting parents to become SEL role models (for the child.) The parent app is a key piece of the gestalt of the IF... game experience in that it serves as an engagement tool for the parent - connecting parent and child around SEL learning - as well as a stealthy form of imparting critical SEL knowledge to the parent.

IF...’s Learning Goals

There are five main competency areas in which IF... seeks to build emotional intelligence in the child. These competency areas directly match with the five core competency areas in SEL the Collaborative for Academic and Social and Emotional Learning has identified. (For more on the core competencies, see CASEL.org.) They are: self-awareness, self-management, social awareness, relationship skills and responsible decision making.

Via an analysis of CASEL's SEL competencies, the Illinois State Standards for Social and Emotional Learning (the only free-standing, comprehensive state standards for SEL), Anchorage School District standards for SEL (a detailed set of standards by grade), KIPP's Character Report Card, The Nueva School's set of competencies and tools (for grades 1-8) as well as additional published materials from Greater Good Berkeley, evidence-based SEL programs and anti-bullying programs, we arrived at the below canon of awareness' and skills that the IF... game seeks to teach.

SELF-AWARENESS:

- **Awareness of Emotions** – Children recognize and describe their feelings accurately and as they occur, allowing for a fuller understanding of themselves.
- **Awareness of Traits** – Children recognize their own abilities and qualities, allowing access to self-confidence and creativity.
- **Awareness of Supports** – Children recognize the need for supports and sources of



support.

- **Awareness of Responsibilities** – Children are aware of their age-appropriate responsibilities and tasks.

SELF-MANAGEMENT:

- **Managing Emotions** – Children are aware of the need for managing strong emotions, such as anger.
- **Tools for Regulation of Emotions** – Children are aware of the need to use tools to regulate emotions, they know what those tools are, and they are capable of applying them when needed.
- **Resilience/Grit** – (1) Children are able to effortfully control their emotions to delay gratification, (2) they demonstrate an awareness or knowledge that keeping at a challenging task “pays off” and/or (3) they show an awareness of and/or the ability to plan in order to meet a short or long term goal.
- **Gratitude** – Children are aware of the need to nurture gratitude and appreciation.

SOCIAL AWARENESS:

- **Sensitivity** – Children are able to perceive or sense others’ perspectives and needs.
- **Empathy** – Children sense and feel the same feelings as others are having, and use that understanding to guide their actions.
- **Compassion** – Children care that others don’t suffer and have a desire to act kindly and help others when they do.

RELATIONSHIP SKILLS:

- **Listening** – Children are aware and/or apply listening in an active and reflective way.
- **Expression** – Children recognize the need and are able to express themselves and their needs clearly, calmly and firmly as needed, with a tone that is considerate of others’ feelings.
- **Humor** – Children recognize the benefit of and utilize humor or playfulness as a means of enriching their interactions with others.
- **Supports** – Children are able to reach out and ask for help and support.
- **Conflict Resolution** – Children recognize the need to de-escalate conflict, are aware of the tools they can use to do so, and are able to apply those tools when needed.
- **Collaboration** – Children are aware of the need to offer encouragement, espouse an attitude of inclusivity, and an acceptance of diverse points of view to support cooperation and team building.

DECISION-MAKING:

- **Responsible Decision-making** – Children recognize the need and are able to make respectful, responsible decisions based on evaluating the needs and perspectives of



themselves and others.

- **Acceptance** – Children recognize the benefit and are able to let go of mistakes or disappointments, and when needed forgive, to achieve a sense of freedom and move forward.
- **Leadership** – Children recognize the value of and are able to initiate or direct a project or team, allowing for a deeper sense of confidence in themselves and their creativity.

We call these our ExSEL goals or skills. As we will explain in further detail in the section “*How SEL content is delivered through the game*”, these skills are taught through the game over an extended period of time similar to how SEL content is taught over time in the classroom.

II. Foundational Principles of the Game and their Research base

IF... was created and designed based on a number of research-based foundational principles of learning - both game-based learning principles and traditional ones.

“Game-based learning has captured educators’ and researchers’ attention as a means to enhance the effectiveness of learning by making the learning context more appealing, memorable, and engaging than traditional contexts,” writes FSU Professor Val Shute in her recent work, *Interactive Learning Environments* (Novak, Johnson, Tenebaum & Shute, 2014). We feel IF...’s most powerful affordance is its ability to engage and motivate the child to learn by virtue of the child’s intrinsic and autonomous desire to play. 91% of children between the ages of 2 and 17 play games. (NPD Group, 2011.) At it’s most simplistic, IF... seeks to “meet children where they are at” and leverage their organic desire to engage with a device and play games.

Research corroborates that this intrinsic desire to play supports learning, and learning *within* a game environment. In “Motivating children to learn effectively: exploring the value of intrinsic integration in educational games,” (Habgood & Ainsworth, 2011) researchers compared the learning gains of students intrinsically vs extrinsically motivated to play a learning game. They found that “children learned more from (an) intrinsic version of the game under fixed time limits and spent 7 times longer playing it in free-time situations. The study offers evidence for the value of an intrinsic approach for creating effective educational games,” (Habgood & Ainsworth, 2011).

Another affordance of learning games like IF... is their ability to assess learning and provide feedback in real time. Learning games are uniquely able to function as both tool *and* test. They can teach content *and* capture student data (choices, answers etc.) in tandem. This “real time” tracking allows games to instantly respond to the input they are receiving from the child and give



personalized feedback. In this way, games go beyond summative assessments – which simply give a static snapshot of learning - to serve as formative assessments, “the main purpose of which is to give feedback to students and teachers to guide learning along the way,” (Kamenetz, A., 2013).

This kind of “continuous and ubiquitous” form of assessment best supports retention and transfer of learning, offers Shute in her upcoming white paper on the topic. “With a continuous assessment model... the best way for (children) to do well is to do well every day. When children retain more of what they learn, “we (enable) them to better succeed in cumulative domains... which are essential to our nation’s economic health,” (Shute, 2011).

Traditional learning principles on which IF... is based include the use of role play, compelling narrative, and the combination of participatory interaction, auditory and visual communication to enhance learning.

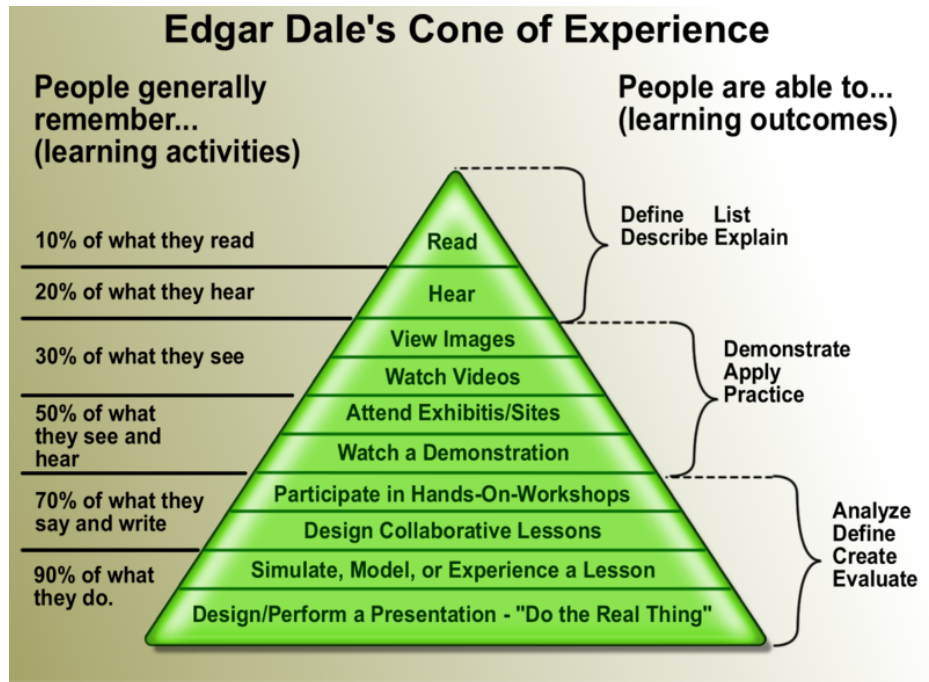
Role play and simulations are a form of experiential learning (Russel & Shepherd, 2010). When children role play, they don’t just learn about the story, they *become* part of the fabric of the story itself. Ian Bogost, in *The Rhetoric of Video Games*, highlights role playing games’ “capacity to build in the player perspective taking, and with that the ability to understand, evaluate and deliberate those perspectives,” (Bogost, 2008). He focuses on how Role Playing Games (RPG’s) can serve as a form of media where cultural values or perspectives can be represented. He uses the RPG “Animal Crossing” – a kids’ game about buying, lending and paying back debt - as an example of how children explore the different perspectives that exist in our culture around capitalism and consumerism. Bogost’s work is a powerful example of how role play – whether “live” or within a game medium – supports learning *and* building empathy in the participant.

IF... also leverages a compelling narrative for learning. “Narrative makes something abstract more concrete/immediate. (It) contextualizes information by creating the framework for (children) to place the new knowledge into and thus improve their retention and understanding). (And it) allows (children) to have more immediate emotional experiences that they can relate to and therefore remember,” (Szurmak & Thuna, 2013). In IF... we offer a compelling fantasy narrative – yet one that explores real-life relevant situations and emotional challenges - and cast the child as a hero with the unique opportunity to make a critical impact on this virtual world. By leveraging narrative and role play in this way, we seek to leverage our tool to support learning *and* empower the child with a sense of agency.

IF... engages the child in participatory learning or “learning by doing”, enhanced by both auditory and visual communication to support a range of learning styles. According to Edgar Dale’s “Cone of Experience” triangle representation, “people (generally) remember 10% of what they read, 20% of what they hear, 30% of what they see, 50% of what they see *and* hear... and



90% of what they do,” (Tangient LLC, 2012). Although researchers debate the validity and research base for these percentages, as well as rightly point out that “(optimized) learning requires more fine-grained differentiation of instruction that takes into account... how the brain functions, different styles of learning and multi-media design”; what is not debated is that “retention is improved through words and pictures rather than through words alone,” (Metiri Group, 2008).



In IF... the child actively participates in game-play, audibly listens to characters teach *and* reads character dialogue with learning content - all fluidly in concert. We like the way Matthew Peterson, Chief Scientist and co-founder of MIND Institute, put “learning by doing” into lay terms for an audience of superintendents at 2013’s Neuroscience Symposium before he led them in a series of hands-on learning challenges, “You have to do stuff, you can’t learn passively,” (Ark, 2014),

III. Social and Emotional Learning Content Used to Inform In-game Learning

The IF... game received inspiration from The Institute for Social and Emotional Learning’s (IfSEL) experiential lessons authored by Janice Toben, M.Ed. IfSEL is a team of SEL practitioners, educational consultants, media specialists, researchers and school counselors formerly associated with The Nueva School in Northern CA. The team has over three decades



of experience in hands-on SEL implementation in schools across the country. The Nueva School is one of the first schools in the country to successfully implement SEL and is prominently featured in Daniel Goleman's bestseller on the topic, "Emotional Intelligence".

IfSEL lessons were created for students in grades one through eight and aim to teach the five social and emotional competencies defined by The Collaborative for Academic and Social and Emotional Learning: Self-Awareness, Self-Management, Social Awareness, Relationship Skills, and Personal Decision-Making.

The compilation of lessons explicitly helps young students gain focus and experience with development of the intrapersonal (with self) and interpersonal (with others) dimensions. Fostering social and emotional acuity from the point of view of self and others creates a dynamic awareness and requires specific social and emotional skill.

An underlying principle of the lesson design is that when emotion is observed and then understood cognitively, students act with greater emotional balance and authenticity; thus a feelings-thoughts-actions "triangle" of awareness is a large part of the work.

The lessons were designed to highlight and teach SEL skills that can be internalized over time, and applied to real life situations, bringing about greater self-expression and harmony. Designed for active engagement of the learner and her creative response, the lessons use visual metaphors and movement; rely on self and group observation; offer opportunities for focus and centering; and involve collaborative problem-solving and improvisation. Non-verbal communication is evoked through silent gesturing in some of the collaborative experiences while role playing shapes verbal interactions. Practices of active listening, appreciation, and mindfulness are evident throughout.

A key lesson design element in IfSEL's work is the use of reflective questions that invite the learner to focus on developing intrapersonal and interpersonal skills. "How did you feel at the beginning, middle, or end of this activity?" and "What did you learn working with others that you could apply to the next time you are in a group?" are examples of personal and social questions.

To promote the depth and meaningful acquisition of social and emotional learning, the lessons are organized in two ways:

1. In a logical, accumulative sequence aligned with the developmental issues and social and emotional needs of elementary school aged children while progressing through a typical school year, September through June. Within this sequential format, SEL vocabulary and skills build in a meaningful progression so that the learner acquires skills at a beginning and foundational level, increasing to greater complexity as the student grows her intra and interpersonal awareness and communication skills.



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2. In a logical, accumulative sequence that focuses the learner on a specific topic or series. In the classroom setting, a pre-determined series allows teachers to tailor the SEL to the identified needs or issues of their students and target the teaching of skills in a timely way, based on real-time assessment of student behavior. For instance, a teacher may encounter social power plays and exclusion of others on the playground and believes his students would benefit from focusing on an empathy-building series. The Emotion series; Conflict Resolution series; Collaboration and Group Problem-Solving series, are all examples of how the lessons are arranged in this way.

Within the series, the SEL skills build upon each other to create a repertoire for a student's social and emotional competency and best practices. For example, here is a chronological progression of SEL skills and corresponding lessons for the beginning elementary grade-level student:

Students learn to identify a vocabulary for emotions beyond sad, glad, and mad. Student then identify the nuances within or multiple layers of emotions. Following this foundation, students are ready to place an accurate description of their emotion within an I-statement, and directly express a feeling or need to a classmate. After the I-Statement is learned, students are introduced to the "win-win solution", a pro-social tool to negotiate collaboratively with others and de-escalate a conflict. Then "escalate and de-escalate" concepts are introduced followed by learning to let go, forgive, and appreciate others.

IV. How IfSEL Content is Delivered Through the Game Medium

Sequencing

The vast majority of children have never been explicitly taught Social and Emotional Learning in their schools, hence IF... assumes that new players are new to SEL. This allows IF... to focus initially on grounding all players in the same consistent foundation of Social and Emotional Learning.

IF... focuses on children between the ages of 7-11. These children are typically at minimum beginning readers, are attending school or being home schooled, are expected to perform academically and are likely dealing with school climate and/or the normal challenges of peer and sibling interactions.

Although there are several ways in which school-based SEL programs are taught (some integrate at advisory sessions daily, others throughout the day by integrating into academic learning), IfSEL lessons are designed to teach SEL in designated one hour class sessions each week. In those sessions, practitioners cover roughly 1-2 Lessons. IF... builds on this model by



assuming roughly one hour of gameplay time per week. This supports the game’s ability to introduce and teach the SEL skills covered in 1-2 lesson plans per week (or 4-8 per month.)

IF... delivers content in monthly “issues” that are in some ways equivalent to a monthly magazine. We refer to these monthly issues as “Chapters” of our story (similar to chapters of a book.) Our design judiciously takes care not to introduce or go into depth on too many SEL skills in any one Chapter. Hence we look at Chapters 1, 2 and 3 collectively in considering how to explore and teach the skills covered in IfSEL’s lessons targeting the same timeframe.

To maximize the learning and absorption of the skills, we continually reinforce skills introduced and taught in any one Chapter. We likely may introduce a skill in one chapter, continue to explain it in the next chapter, and then reinforce it periodically in later chapters. For these reasons, a chapter of IF... may reference 4-8 different IfSEL lessons at some level.

Design Elements

There were two driving design elements behind the creation of IF... Chapters: story-telling and IfSEL’s experiential SEL lessons.

Writer (and CEO) Trip Hawkins conceptualized and wrote a framework for an epic fantasy adventure with countless scores of character, dialogue, and interaction appealing to children 7-11. His original story plot, the engaging and “human” personalities of his characters and their challenges, and the charming setting inspired and “made way for” the placement of foundational SEL skills in Chapters 1 and 2 of the game.

The IF... game’s story line was further inspired by Joseph Campbell’s, “Hero’s Journey”. The Hero’s Journey is a pattern of narrative identified by the American scholar Joseph Campbell that appears in drama, storytelling, myth, religious ritual, and psychological development. It describes the typical adventure of the archetype known as The Hero, and how this ordinary human being is “called to adventure” in her lifetime to grow and develop. She must choose to leave the comfort of the known and move into the unknown or region of “supernatural wonders and fabulous forces”. Obstacles and trials are encountered, testing her tenacity and creativity. The human ultimately becomes the hero as she prevails after a long trial, returning home transformed and with new insights, abilities and powers to bring goodness and strength to her fellow man (and woman.)

Concurrently, IfSEL’s lessons also served as guides to create fun, “real-life” relevant scenarios and rich experiences in the game. The experiential lessons often enhanced the characters, plot, and visual imagery. When IF ... game development was driven by the lessons, both the lessons (the “how”) and the skills they focused on teaching (the “what”) inspired elements of the narrative’s unfolding. This symbiosis of design and creative thinking between IfSEL lesson



author Janice Toben, M.Ed. and CEO Hawkins was also buttressed by Chief Creative Officer Ben Geliher and If You Can’s creative team’s input. This interdisciplinary creative exercise is planned to continue for the creation of future chapters, and to evolve based on feedback from players and parents over time.

Specific lessons and learning goals chosen for Chapter 1

For Chapter 1, teaching goals and lessons were selected by our experts on the basis of what most effectively and logically sets up a foundation of social and emotional learning or, put another way, intra and interpersonal skills.

The specific skills and lessons introduced are as follows.

Skill	Lesson
Self-Awareness/Emotion Awareness	Rating Scale/Check-in
Self-Awareness/Emotion Awareness	Vocabulary of Emotions
Self-Awareness/Emotion Awareness	Layered Feelings
Self-Management/Tools for Regulation of Emotion	Deep Breathing Techniques
Self-Management/Managing Emotions	Escalating and De-Escalating
Relationship Skills/Expression	The I-Message
Relationship Skills/Conflict Resolution	Win-Win Solution

Chapter 1 introduces emotion awareness and works with a wide range of feelings, then shifts focus to learning tools to calm down from an escalated emotional state. The chapter also covers how negative emotions like anger have an underlying feeling such as hurt, sadness or fear. This is illustrated via a storyline in which a “mom energy creature”, Cinda, becomes upset because the player has unwittingly separated her from her baby, Sparky. To complete the Chapter, the player must observe Cinda, offer strategies to help calm her, and then collaborate with her to find and befriend Sparky and reunite the family.

Leveraging Game Play Mechanics

While weaving the lesson teaching around the story and characters, our interdisciplinary team also must work within the constraints of the gameplay functionality (available in the timeframe for delivery of said Chapter.) In Chapter 1, for instance, we work with the following limited, programmable gameplay features:

1. character and avatar dialogue;
2. movement of objects found in the environment (such as picking up trash, repairing run-down benches); and
3. movement of characters (such as moving a character up into the air to show escalated



emotion.)

Despite these constraints, there are several ways in which we leverage these features for learning:

1. listening to statements, such as those made by mentor characters YouDog and Kibble;
2. examining and choosing responses in conversations;
3. receiving feedback about the conversational choices;
4. receiving reinforcement of positive choices;
5. repetition; and
6. picking up on “hints” or suggestions offered by mentor characters.

IF... also leverages a popular, competition-like game play mechanic to enhance some of the metaphors we explore in the story of IF... Trip Hawkins writes the following about how he uses this game play mechanic to support learning through our narrative:

“Our preview game includes a strategy and resource-management mini-game with strong action dynamics that we call a "scrub" between two magical creatures known as "Vim". We use Vim as tools and metaphors for emotions and SEL skills (eg you may be called upon to take a Vim with an "anger management problem" to our “Training Grounds” to practice tools that build skill in emotional awareness and regulation, that a child can later apply in their own moments of anger)... We invented the idea that the Vim have a problem with Dark Energy and the player needs to help them by using Light Energy to "clean them". The way this is presented feels familiar to most children because many games have this kind of a Rochambeaux game in which you face off against a rival creature and choose one from your own collection, and then have to match up the right strategies for success in the competition, not unlike two Olympic competitors in curling or slopestyle snow-boarding.... The choices are simple and familiar to kids from many other contemporary games. We enhance this simple process of resource management and strategy by having very dynamic visuals and action that bring the energy to life and support our storyline about The Energy Field and Light and Dark Energy (in our town of Greenberry.)”

State Standard Alignment of IF...

All chapters of IF... are aligned to Illinois State Standards for Social and Emotional Learning. Illinois is the first and only state with freestanding, comprehensive teaching standards in SEL, although many states are in process of developing them.

The attached alignment chart shows alignment across: the 20 SEL skills the IF... game teaches and assesses by chapter, CASEL’s five core competency areas and IL State Standards. Using this chart, a classroom teacher or after school program facilitator can use the IF... learning game in a classroom or afterschool setting to teach directly to state teaching standards. The



teacher or facilitator might also buttress students' in-game learning with experiential lessons from any number of school-based SEL programs that teach the same skills.

Personalized Learning

At this early juncture in IF...’s design and development, personalization of learning is limited. In our Chapter 1 preview, we do however, address and support different learning levels and paces by providing immediate, personalized responses based on the player’s choices. For instance, an older or more advanced SEL learner who chooses an answer demonstrating awareness of a skill would likely receive positive reinforcement of the choice by a mentor character, and would then experience the story narrative moving forward. A younger child or a child with less SEL exposure - whose choice does *not* demonstrate the awareness or knowledge of the skill (assessed in that particular choice) - will receive a different response from the mentor character, one that is crafted to support their better understanding. In some instances the child may not move forward straightaway in the narrative as the mentor character may again pose the question. This immediate feedback, personalized feedback supports IF...’s ability to serve as a formative assessment tool.

Although not a part of our Chapter 1 preview, we also support children’s different levels and paces of learning by providing more advanced players with additional game content once they’ve completed a chapter. We call this additional content a “Byplay”. Byplays allow a faster learner to continue to feel motivated and engaged by navigating additional story elements with slightly more advanced SEL content.

Our parent dashboard is also a critical mechanism through which IF... seeks to support each child’s individual learning needs. In addition to the dashboard sharing specific information about what their child has learned, parents will also receive suggestions for supporting their child’s learning. In this way, the parent is encouraged and empowered to support their child’s *individual* needs, buttressing the child’s in-game learning with real-life questions and activities. In addition to the IfSEL team, IF... will be working with the Yale Center for Emotional Intelligence’s Marc Brackett, PhD, and Robin Stern, PhD to maximize the usability and efficacy of our parent dashboard.

V. How our Interdisciplinary Team Seeks to Assess Learning

The team at IF... developed an embedded assessment model to measure understanding and growth of the 20 identified Social and Emotional Learning skills the game seeks to teach. The game continuously captures the player’s answers to multiple choice questions she is presented with and must respond to as she moves forward in the game narrative. Based on those answers, the game provides immediate feedback and “course correction”. In this way, IF...



serves as both teaching tool and a formative assessment of learning for the child.

Our embedded assessment system is designed as follows:

IF... continuously presents the player with choices around interpersonal dialogue or action situations. Each choice the player makes is reviewed by a team of SEL experts and practitioners. These experts identify that said choice would indicate the player's understanding of, lack of exposure to, or inapplicability of one or possibly several of IF... 's 20 skills. Based on this review and analysis, the choice is given a positive score if it reflects understanding, a negative score to reflect a failure to understand, or no score if no ExSEL skill is pertinent to that particular choice.

For example, if a player chooses to persist in completing a task that is very difficult, continuing to work towards final completion despite numerous setbacks, and completes the task prior to attending a "party" that takes place in the IF... game world (an example of a fun activity that might lure the player away from the task at hand), the player has demonstrated a positive indicator regarding the ExSEL skill of Grit. (IF... defines Grit as a child's ability to (1) effortfully control their emotions to delay gratification, (2) demonstrate an awareness or knowledge that keeping at a challenging task "pays off" and/or (3) show an awareness of and/or the ability to plan in order to meet a short or long term goal.) However if the player quickly abandons the task after the first setback and refused to re-engage, despite encouragement and support from character mentors in the game, her choices would indicate a lack of understanding or failure to demonstrate Grit and a negative score would result. In addition, such a choice would also receive a negative score for "Awareness of Support" (defined as the child's ability to recognize the need for supports and sources of support) since the choice involved ignoring the support and instruction of the mentor. By contrast, the game situation may not have anything to do with the ExSEL skill of Compassion in which case such EXSEL Goal would not receive any scoring.

Choices can be tabulated in the following ways:

- number of choices that reflect understanding of the awareness or skill;
- net effective choices (effective vs. ineffective);
- percentage of times effective choice is made; and
- weighted value of choices.

On the 4th point above, our experts have discerned that all choices are not equal. Certain choices evidence less clear discernment of aptitude of an ExSEL skill than others. For instance, some choices may be more obvious, and therefore "easier" for our player to correctly choose because of context. In contrast, other choices clearly demonstrate more insight, awareness or knowledge of an ExSEL skill. To accurately reflect this difference, our experts distinguish between two gradations in scoring. Those in the first category receive a standard weight



(numerically, the integer value of +1.) In contrast, insightful choices that may be harder for the player to answer correctly due to context are scored with a +2.

Our team also worked with assessment specialists at Stanford Research Institute (SRI) to apply Evidence Centered Design protocols to our model. At its most basic, Evidence Centered Design, or ECD, is a process of making visible the linkages between:

1. the skills we are seeking to build (in the child) and about which we want to make inferences;
2. the evidence or behaviors (of the child) that demonstrate or reveal competency in the targeted skills; and
3. and the tasks or situations we must create (in the game) to elicit those behaviors.

One might, perhaps over-simplistically, think of ECD as a model of a proof argument. SRI worked with our interdisciplinary team to create a design pattern to “make visible” the linkages between inferences about skills, evidence and child behavior in the game.

As part of our ongoing efforts to test and improve the accuracy of our scoring, we will be working with game design, assessment and SEL researchers to look at the construct validity of our tool, as well as to conduct evidence-based research.

How do we communicate player data/learning

Player data from choices can be accumulated, organized and summarized in a variety of ways for a variety of purposes. Players do not see any of this data because it is the purpose of IF... to avoid the explicit rewards (typical in most video games) and to shift players away from “virtual materialism” and instead towards learning that is more “real-life” reflective. How does a player’s choices impact other characters in the game emotionally? How do they impact the environment? How do those characters then treat the player? By allowing the child to experience the ramifications of their choices in the game much the same way they would experience them in real life, we give them a safe and supportive environment for making good choices, but far more importantly, for failing to.

We do, however, report feedback to the parent via IF...’s Parent Dashboard App. Regarding the specific feedback we report, at this juncture we are careful to only make and report inferences about the “in-game” activity of the child. After conducting research on the validity of our constructs and efficacy of our tool, we are likely to determine that more analytical and detailed data reporting can be provided to parents (and perhaps to teachers as well.)

Therefore, the parent might receive feedback on their child’s experience in Chapter 1 of the game in the form of this type of statement: “Your daughter is making choices that recognize the



power of deep breathing as a tool to manage frustration.” (Note we do not make inferences or report that the child now has the ability to employ the tool in “real-life” and/or is able to identify frustrating situations in which she might do so.) It is our intention that such a statement will also be buttressed by a visual representation of a *continuum* of understanding or competency of the skills. The continuum will recognize beginning stages of awareness of skills to more proficient, and will show where on the continuum for each skill their child lies. With this visual, we wish to communicate to the parent that Social and Emotional Learning skills are learned on a continuum (whether in IF... or via other modalities) and avoid giving the parent the impression that their child either has or does not have (or is either “good” or “bad” at) a skill.

Chapter Progression

As players progress through each IF... chapter, they encounter increasingly more advanced SEL content. In order to make a determination if a player is “ready” to progress to the next chapter, our experts assess the player’s performance (on choices that pertain to the ExSEL skills covered in that chapter) against a designated level of proficiency or understanding of those skills.

How do our experts gage that “designated level” of understanding? On the continuum of Social and Emotional Learning (ExSEL) skills covered, we might think of “sufficient understanding” on the far right, “emerging understanding” in the middle, and “nascent or little understanding” on the far left. In order to “pass” to the next chapter, the child must fall somewhere between emerging and sufficient understanding.

Here we might draw an analogy to math learning, and the process by which teachers determine a level of proficiency to move a child forward and expose to new material. Our experts’ process is akin to the review and determination by a math teacher of how many addition problems a student must solve before proceeding to the topic of subtraction. The answer does not need to be 100% because addition will likely continue to be reviewed, reinforced and tested even after subtraction is introduced.

Similarly, IF...’s experts determine the “passing” proficiency level (or number of correct choices) for IF... players to progress. For instance, IF...’s content experts might determine that Chapter 6 cannot be opened for a player due to a failure to achieve an “adequate score” (between emerging and sufficient understanding on the continuum) on Chapter 5. If the Chapter 5 score is too low, some or all of Chapter 5 will need to be repeated by the child until the passing score has been earned. But this passing score does not indicate mastery; it indicates sufficient understanding to be introduced to Chapter 6 content and to continue to be assessed on an ongoing basis to determine further learning needs.

It should be noted that, as with all multiple choice questions, a player may *randomly* make a



choice demonstrating understanding of an ExSEL skill. So as to best ensure the inferences we make about “in-game” choices *do* reflect knowledge or understanding of an ExSEL skill, we intentionally create a high number of questions to assess the skill in question. For instance, if a Chapter is focused on awareness of emotion, and is seeking to teach and assess the child’s ability to recognize and describe feelings accurately and as they occur, we can create several – sometimes up to 100 or more - player choices that reflect this understanding. In larger “sample sizes”, we run far less risk that the child will guess correctly or has figured out an angle for “gaming” their choices. (For instance, the probability that a child would randomly choose the correct answer out of three choices thirty times in a row is 1 in 205 trillion.) We are also able to look at a child’s *progression of learning* with this larger sample size. For instance, we can posit that a child is likely to be learning a skill if our data indicates that the child haphazardly hits and misses early in the Chapter but then finishes the Chapter by making 30 “good” choices in a row with respect to that particular skill.

Many facets of IF... scoring remain “to be determined”; however we are enthused by the wealth of data and level of granularity our tracking system furnishes our assessment and game design teams for continual research and exploration.

Conclusion

We are only just at the beginning of our journey with IF... and our exploration of how best to leverage our digital tool to teach children social and emotional skills. As we look to next steps of completing and releasing our full Chapter 2 and the IF... Parent App, our own learning will grow. We learn, iterate and learn more. We are also currently engaged in discussions with assessment teams at SRI, Arizona State University’s Center for Games and Impact and The 3C Institute to test our tool. Discussions range from immediate testing of construct validity, to piloting and testing IF... in California’s CORE districts to support their commitment to show growth in SEL measures and parent engagement. This too will serve to inform, refine and better our tool.

We see great potential in IF... and will continue to inform the community of our progress in real time so that we may help as many children possible to thrive – both in and out school.



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