How Students Can Acquire Lifelong Skills Through Game Creation

Video Game Players

The total number of video game players in the world is estimated to be 3.25 - 3.30 billion people. The video game industry is estimated to be US$ 265 billion. Video games are enjoyed by the young and the old. Over 75% of the Gen Z and Gen Alpha are active 'gamers' and over 55% of the Millennials are active players on PCs. Approximately 650 million gamers are 55+ years old!

Based on the research conducted by SoundStep Consulting Services people regardless of age and other demographics are initially drawn into playing video games for similar and fairly common reasons. Figure 1 below shows the Initial Set of Reasons people started to play video games.

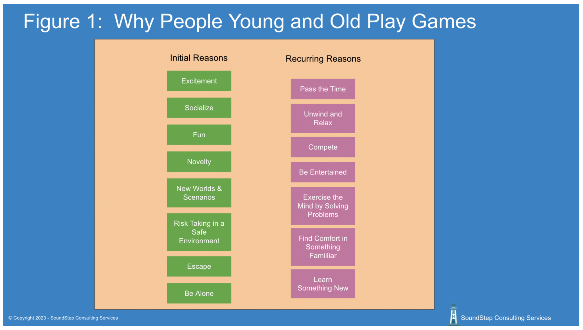


Figure 1: Why People Young and Old Play Games

As they continue to play and become familiar with both the game they're playing and with the process for selecting and accessing new games, their reasons for playing games broaden. Figure 1 includes the Recurring Set of Reasons - which center around what people wish to continue to experience and gain having acquired a certain amount of experience with the game(s) they have tried.

The research study also found that many game players are fairly content with how they browse and select new games, and what they gain from the types of games they select. In other words, their reasons for playing (whether in the Initial Set and/or the Second Set) are being met. Certainly, adults with busy schedules and demanding jobs are quite content to play games as a means of relaxation and/or escape and/or being challenged. They utilize it to pass the time and avoid games that will add more stress to their lives.

Gen Alphas, Gen Zs, and Following Generations

The younger generations (who are 'digital natives' since they were born in a digital technologies and AI world) are also 'video game natives' - with smartphones, iPads and tablets, PCs and Macs, and other devices providing them easy swipe-and-tap access to video games.

Many were introduced to mobile devices and video games early in their childhood. Because of the accessibility, attractiveness and appeal of video games, the younger generation are not content to play with just a few games. The research study found that children (12 years old and younger) seek new games and experiences on an ongoing basis. Their curiosity, excitement, high energy levels, and desire to learn new things cause them to continuously search for new games even if they already have games that they play consistently. Their friends and other gamers they interact with provide them information on the latest and hottest games. They also become quickly dissatisfied with games that are easy to win, and games that lack visual and sound appeal. Between the ages of 8 and 12, they have developed an appetite for games that provide the *'Wow'* factor. It is this continuous search for new games, new thrills, challenges, and levels of excitement that the video game industry feeds on.

The Video Game Industry

The video game industry knows how to capitalize on the younger generations' hunger for new experiences and their fear of missing out (aka FOMO). The industry has expert market and demographics analysts, game publishers and promoters, game streamers and Vtubers, game forums and arenas, distributors and retailers (online and on physical locations) that enable them sell games that appeal to practically all demographic grouping.

Figure 2 presents a diagram of the **Video Game Industry Ecosystem** created by SoundStep Consulting Services. The 'Gamers', depicted in a red box in the diagram consist of Consumers and Prosumers. Consumers are people that buy games and Prosumers are people who buy and play games but also create games. Note well that the number of Prosumers are growing each year. Some started creating their own games when they were 8 or 9 years old.

Figure 2: The Video Game Industry Ecosystem

Since 2013, the industry has increasingly produced more sophisticated, visually-appealing, and complex games. This is primarily due to game creators and who have harnessed the power of digital technologies and artificial intelligence (AI).

Games Continue to Grow in Sophistication

Today's games offer visually-stunning art, 3D images, and animation. They have creative sound effects and background music, and captivating characters, avatars, and storylines. Their game mechanics and controls provide easy and smooth movement of game characters and avatars, unbroken shifts in background scenery, and deliver high levels of story-telling, action, simulations, and immersion.

The large number of video games today (close to 1 million worldwide) and the wide variety of features, functionality, and gaming experience they provide necessitated the creation of game genres (i.e. game categories). Here are some of the game genres:

- Action Games
- Adventure Games
- Action-Adventure Games
- Escape Games
- Role Playing Games
- Sandbox
- Simulations
- Logic Games
- Strategy Games
- Sports Games
- And many others

Each game genre has a sub-genre, for example, Creative and Open World are Sandbox sub-genres.

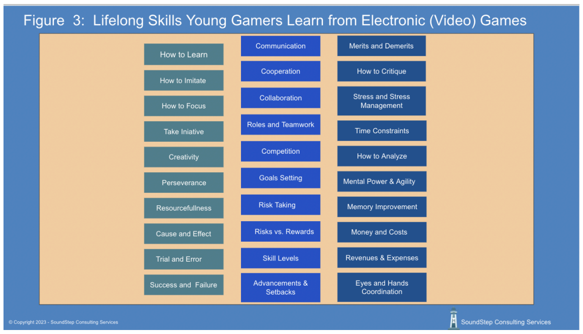
In addition, games are categorized by their gameplay characteristics. For example, first-person shooter games, survival games, real-time 3D games, visual novels, and many others. Some are categorized by the number of players, for example, single player (solo), multi-player, team play, person versus person (PvP), cooperative (Co-op), LAN Co-op, and several others. These categorizations aid both the game developers and sellers, and the game buyers (consumers).

Lifelong Skills

As gamers (especially the young) increase in their game playing skills, their appetite for more sophisticated games grows. And because game creators and developers succeed or fail based on their ability to deliver games that gamers will buy, they are driven to create and deliver more challenging , more powerful, and more sophisticated games.

One of the key findings of the research study is that young gamers are learning lifelong skills from video games (especially sophisticated, multiplayer games).

Figure 3 provides a brief list of ***'Lifelong Skills'*** young gamers are learning by playing video games. Young gamers are often unaware that they are learning lifelong skills. And unfortunately, some parents, guardians, and teachers are also unaware because they don't observe their young ones playing games (and very few participate in playing the games).



The research study found that a growing number of parents, guardians, and teachers are buying more games for the young persons under their care that are educational, promote teamwork and social interaction, and teach how to focus and how to learn. This is encouraging even though parents have expressed their continuing difficulty in finding online resources that provide reliable information and recommendations for age- appropriate games.

Additional Lifelong Skills

Figure 4 provides a list of ***'Additional Lifelong Skills'*** gamers acquire once they get involved in creating games - either on their own, or with a small team, or under the employ of a game development company.

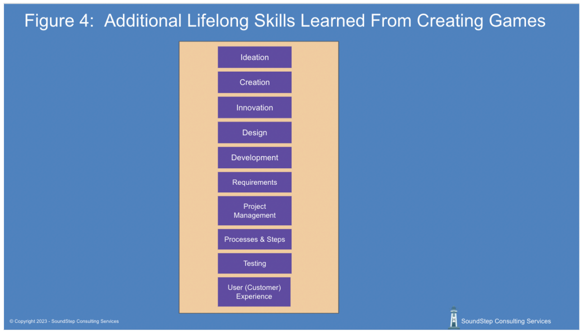


Figure 4: Additional Lifelong Skills Learned From Creating Games

These additional lifelong skills are applicable to any job role or function where a product or a service is to be envisioned, designed, developed by teams, tested, marketed and sold to customers.

Note well that video game companies, software development companies, technology service providers, and technology consulting firms seek job applicants with the Additional Skills listed in Figure 4.

Furthermore, since the advent of digital technologies and the continuing ***digital transformation projects*** across all industries, the skills in Figure 4 are on-demand in Banking, Financial Services, Insurance, Government Sectors, Manufacturing and many others.

Lifelong Skills Learning Approach

SoundStep Consulting Services created the ‘***Approach to Learning Lifelong Skills’*** that’s presented in Figure 5. It was created to provide a single diagram that can serve as an approach, checklist, and mapping tool for parents, guardians, and teachers who are involved in providing guidance and supervision to the younger generation.

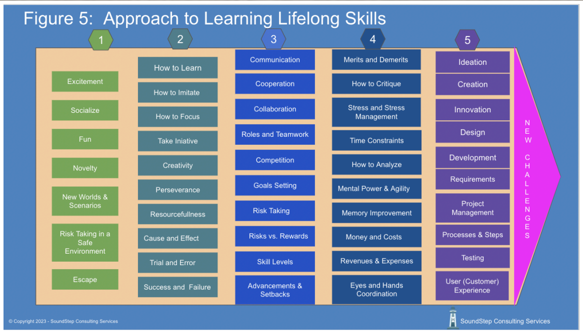


Figure 5: Approach to Learning Lifelong Skills

The ‘***Approach to Learning Lifelong Skills’*** consists of a set of lifelong skills grouped into five columns. The First Column are basic skills that can be acquired from practically any game. However, it’s always important to select games that are non-violent, and cooperative (aka Co-op games) especially for young children.

The Second column are skills that can be acquired from games that are more challenging. This includes problem solving, puzzles, escape, logic, strategy, construction, basic sports, and adventure games.

The Third column from the left are lifelong skills that can be acquired from more sophisticated games. The type of games that fall in this category are multiplayer, collaboration and cooperative. simulations, sandbox, role-playing, action-adventure, multi-level tactics and strategy, games.

The Fourth and Fifth columns in the ***Approach*** include lifelong skills that can be acquired from advanced and sophisticated games and game creation.

How to Utilize the Approach

The ‘***Approach to Learning Lifelong Skills’*** (Figure 5) can be leveraged as follows:

For Parents and Guardians:
Utilize the *Approach to Learning Lifelong Skills* as a ***'checklist'*** when purchasing games especially for young children and teens. This is accomplished by working from left to right of the ***'Approach to Learning Lifelong Skills'*** (Figure 5). For example, when selecting a new game especially for young children determine which skills in the leftmost two columns the children can acquire. As the young children grow into teens, the criteria for purchasing a new game can include skills that can be learned from the first three or four columns (from the left) of the ***'checklist'***.

For Teachers:
Utilize the Lifelong Skills Learning Approach as a ***'checklist'*** to determine what skills their students can acquire by playing an educational game available in their school. Most schools purchase educational tools and games appropriate for a specific subject or course, or grade level.

Teachers should make an effort to leverage educational games that help high school junior and senior students acquire skills as far to the right of the ***'Approach to Learning Lifelong Skills'*** as possible (i.e. columns 3, 4 and 5 in Figure 5). This is to prepare juniors and seniors for college and/or entry into the job market.

For Education Course and/or Pathway Designers:
The *Approach to Learning Lifelong Skills* can be used as a mapping tool when vetting and purchasing Education Software, Platforms, Applications and Tools. This can be accomplished by, a) requiring Education Software vendors to itemize the features, functionality, and the actual skills that students can acquire from utilizing their software, platform, or tool, and b) subsequently mapping them to the Lifelong Skills detailed in the ***'Approach to Learning Lifelong Skills'*** diagram. This mapping exercise can provide significant insight into the strengths and weaknesses of software, applications and tools. If this is done for every course offered in a school, the benefit is the maximization of the school's return on its investments in third party Education software.

For Computer Science and STEM Teachers:
Computer Science and STEM teachers are in an advantageous position because the subjects they teach are foundational and provide a direct pathway for students who are aspiring to achieve higher education and have careers in computer science, science, technology, engineering, and mathematics. Most of the course activities they utilize already include individual and group classwork and projects. And most utilize Education software systems, technology, and tools that enable students to gain hands-on experience in programming, PC and robotics construction, 3D printing and imaging, and access to online search engines.

Therefore, in addition to using the ***'Approach to Learning Lifelong Skills'*** as a checklist, Computer Science and STEM teachers can use it as a guide when developing their classroom activities, creating team and individual projects and homework, and in organizing hackathons, buildathons, and competitions. This can be achieved by using the '*Approach to*

Learning Lifelong Skills' diagram (Figure 5) to identify the specific skill(s) they want their students to learn and practice in the classroom activity, project, homework, or competition.

For example, for high school freshmen students taking their first course in Computer Science or a STEM class, the acquisition of the lifelong skills identified in the first two columns of the ***Approach*** can be the objective of a classroom activity, homework, or project. Introducing games and gaming to freshmen students has the additional benefit of keeping them excited and motivated to remain in computer science and STEM. Nothing demotivates high school freshmen students more than being forced to learn computers and technology via textbooks and lectures without hands-on, practical activities. Games and gaming are critical in captivating young minds and in encouraging them to further explore and learn.

For high school sophomores, computer science and STEM teachers can identify skills from Columns 2 and 3 of the Approach that they want their students to acquire by playing games and by other hands-on classroom activity and projects.

For high school juniors and seniors, the lifelong skills from Columns 3 and 4 should be emphasized in as many classroom activities, projects, and individual study as possible.

Lifelong Skills from Game Creation:

For advanced students (i.e. those who have the talent and aptitude for computers and technology), Computer Science and STEM teachers should encourage them to create games either on their own or with other students. This will provide them the opportunity to acquire skills in columns 4 and 5. As mentioned previously, the skills in Columns 4 and 5 are highly valued in the workplace - and most certainly by software development companies, technology services firms, and by the gaming industry.

Encouraging and Nurturing Creativity and Imagination

Figure 6 below provides a snapshot of what a solo game creator has to do in order to create electronic video games. Each step in the game creation process is challenging and requires knowledge, skills, and experience. The entire process and every step within it provides tremendous opportunities for learning both technical and lifelong skills.

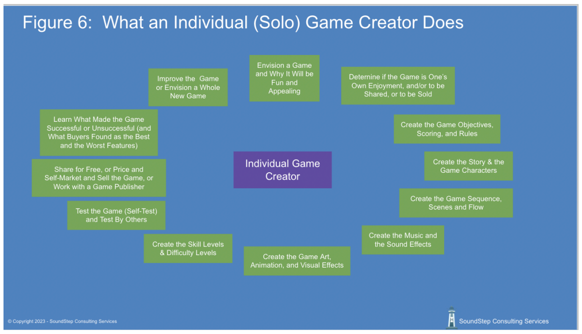


Figure 6: What an Individual (Solo) Game Creator Does

Today, there are online powerful game development platforms (e.g. Unity, Unreal Engine, AppGameKit, Buildbox, Amazon Lumberyard, Cocos2d-x, Solar2D, and several others) that anyone can use to create games. Most include online tutorial videos and practice exercises.

In addition, there are No-Code (i.e. no programming knowledge required) game development platforms (e.g. Construct 3, GDevelop, Gamefroot, Buildbox, Moddio, Stencyl, and several others) that anyone can use to create games.

Computer Science and STEM teachers should take advantage of these game development platforms and encourage their students to create games on their own or with their classmates in order to provide them the opportunity to learn lifelong skills while nurturing their creativity and imagination.

Figure 7 below provides a typical division of labor (or roles) when game creation is to be accomplished by a team. Note how the team approach creates opportunities for students to pursue the game development role they are passionate about. For example, some students prefer to focus on the graphic arts and animation aspect, while others may wish to focus on the music and sound effects; still others may wish to do the actual game programming or assembly of game functions (in the case of No-Code game creation).

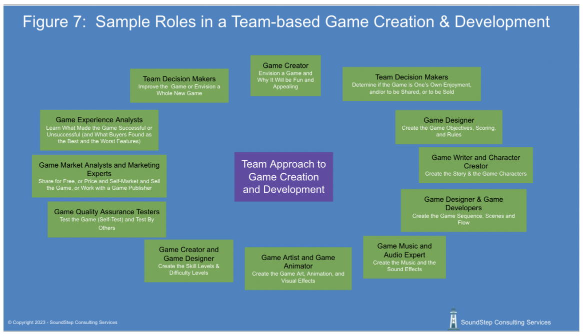


Figure 7: Sample Roles in a Team-based Game Creation & Development

The level of teamwork, collaboration, communication, project management, and coordination involved in creating even the most basic video game will deliver significant learning opportunities for students to acquire lifelong skills.

For Workplace Managers and Leaders: The current estimate is that approximately 70% of the top global corporations utilize gaming and gamification to enhance their employees' skills. Most have embedded gamification in their internal Learning and Development programs. These programs are delivered online and classroom-based. Over 95% of the global corporations incorporate gaming in their offsite training, new employees orientation, and in their management and leadership growth and 'team building and bonding' activities.

Workplace managers, leaders, and their Human Talent and Development experts can leverage the same ***'Approach to Learning Lifelong Skills'*** (Figure 5) as a checklist and a planning tool when designing learning and development pathways and courses for their employees. They can utilize the same ***'Approach'*** for vetting and selecting third party employee learning and development systems and tools. They are in a position to insist that third party vendors provide the specific lifelong skills their products and services will help employees acquire.

From Consumer to Sophisticated Consumer

The typical consumer evolution starts with a person being a first time consumer, then becoming an informed consumer, followed by turning into an educated consumer, and finally a sophisticated consumer. This applies regardless of the product or service a person is buying - and this certainly applies to video games.

By using the ***'Approach to Learning Lifelong Skills'*** diagram parents can select video games for their children based on the lifelong skills they will acquire. This is best accomplished by working from left to right on the diagram. Parents will find that they will develop from being novice buyers of video games to becoming sophisticated consumers. Equally important, parents will have the opportunity to guide their children as they make decisions on which games to play so that they also grow into becoming sophisticated consumers.

Opportunity to Become Prosumers

Young people, especially teenagers should be guided toward acquiring the skills to become creators of games, and not be simply consumers. This is very important for teens who are aspiring to have computer science and/or STEM careers. Referring back to Figures 5, 6, and 7, there are lifelong skills that can be learned by creating even the most basic video game. These skills will always be on-demand in any company that's creating products and/or services.

It's worth noting that video games can be created by persons of any age. There are games created by children younger than 10 years old, and games created by adults over 50 years old. In the United States it's estimated that over 60% of the game developers are 40+ years old.

Video Game Examples

Figure 8 provides examples of video games that enable the acquisition of lifelong skills.

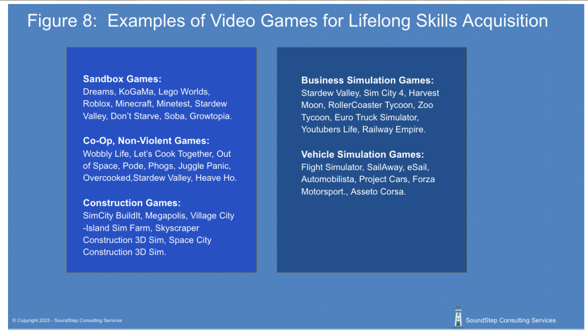


Figure 8: Examples of Video Games for Lifelong Skills Acquisition

Most of the games in the diagram are cooperative and non-violent. Note well that there are parental controls and settings that can be used to further restrict what the young are exposed to when playing these games.

Video Game Platforms

Figure 9 below provides examples of video games platforms which include game consoles, mobile phones, online game distribution stores and libraries, and cloud gaming services.

Figure 9: Video Game Platforms

Creating Learning Pathways for Lifelong Skills

Video games are here to stay and they will continue to be accessible to everyone including young children. They are powerful tools if properly harnessed and leverage for imparting lifelong skills.

Parents, guardians, and teachers can use the ***'Approach to Learning Lifelong Skills'*** to map out a learning pathway for the young to acquire lifelong skills through gaming. They can select games that meet the skills they wish the young to acquire in the various stages of their development. There are numerous resources online that provide detailed information and recommendations for video games. The path to being a sophisticated consumer is not difficult - especially if one is armed with a list of lifelong skills they want to game to help impart to their children or students.

Involvement, Guidance and Supervision

Based on the research study, SoundStep Consulting Services recommends the following to parents, guardians, and teachers:

- Shift from the mindset that games are a waste of time to games being tools for acquiring lifelong skills
- Be involved in order to directly guide, supervise, and influence the young in the types of games they should be playing
- Ask probing questions (beyond the common 'Did you win?' or 'Was it fun?'. Examples of probing questions include,
    - What did you learn from the game?
    - Tell me what the game is about?
    - What's the objective of the game
    - Is it a one player (solo) game?
    - How many players can play at the same time?
    - How do you get points? How do you lose points?
    - Is the game easy? What makes it easy?
    - Are there different levels of difficulty?
    - Different skills you or your game character can acquire?
- As young children grow into teens and young adults, the probing questions should continue to guide them toward being sophisticated consumers and preferably prosumers. Example of probing questions include,
    - What are the best features of the game?
    - How would you improve it?
    - Can you create a better game?
    - How will that game help you in the career you're interested in?
    - What games do they play in the college you are planning to attend?
    - What skills will you learn from the games you're considering to buy?
    - What educational tools are available leveraging the best game technologies and AI today?
- Utilize online resources to gain information and recommendations for games that are educational and productive. Carefully review every game even if they are appropriately rated for the child's or student's age group.
- Learn to use parental controls and settings on games, and apply the appropriate level of restrictions.

- Limit gaming time and supervise game playing for games that involve online players and social media.

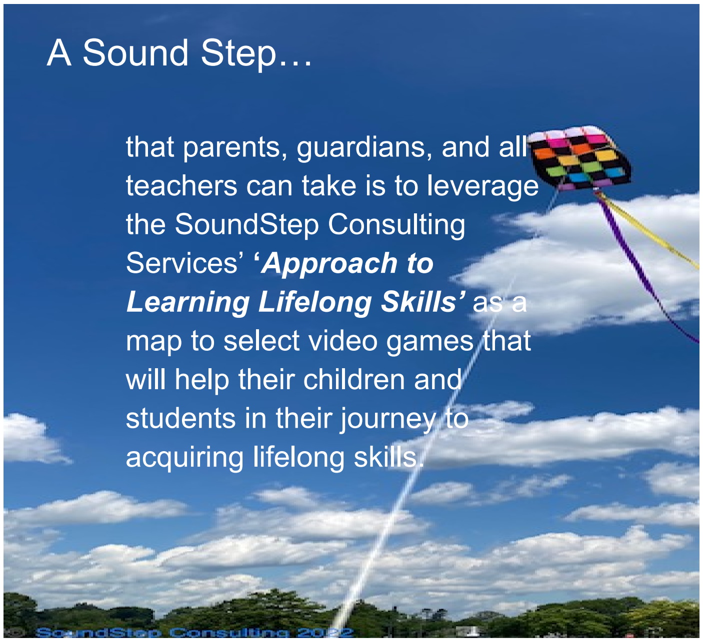
The Need For Altruistic Games

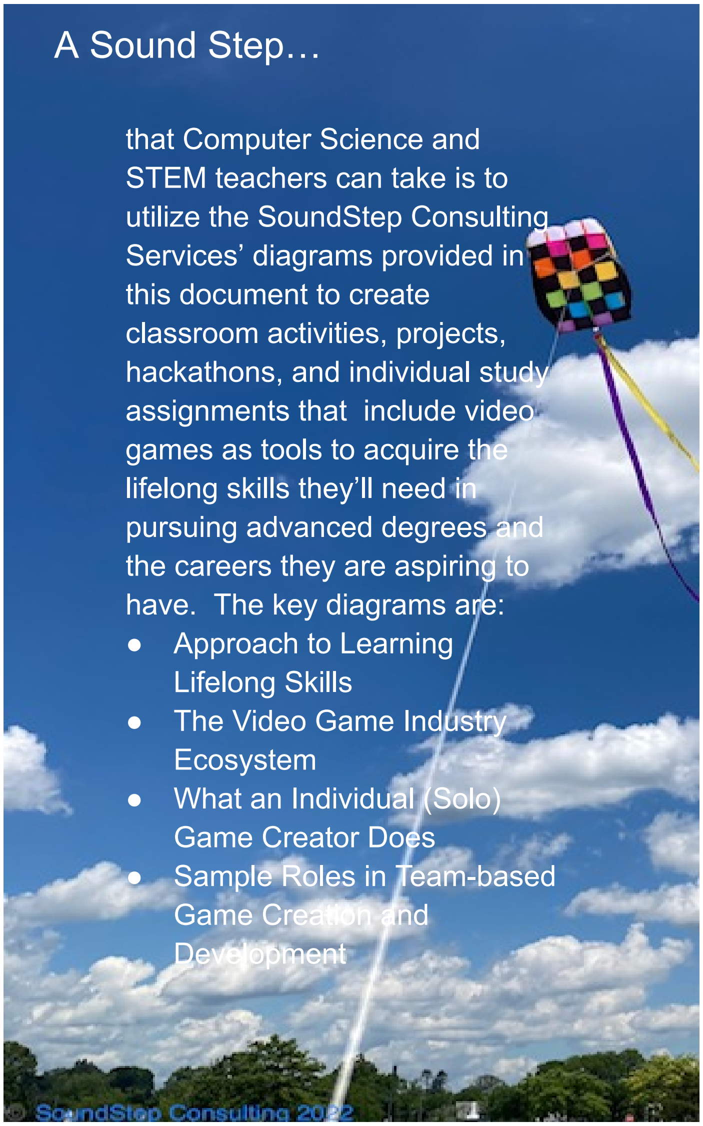
With today's digital technologies, advances in gaming technologies, and powerful AI platforms and applications, there is a noticeable lack of games that promote altruism. In a world where climate change, natural catastrophes and disasters, as well as man-made disasters abound there is a need for games that promote altruism for all age groups. Many game creators and manufacturers continue to fall into the trap that fighting, combat and other forms of violent games are the only ones worth creating because they provide the thrill and excitement buyers will pay for.

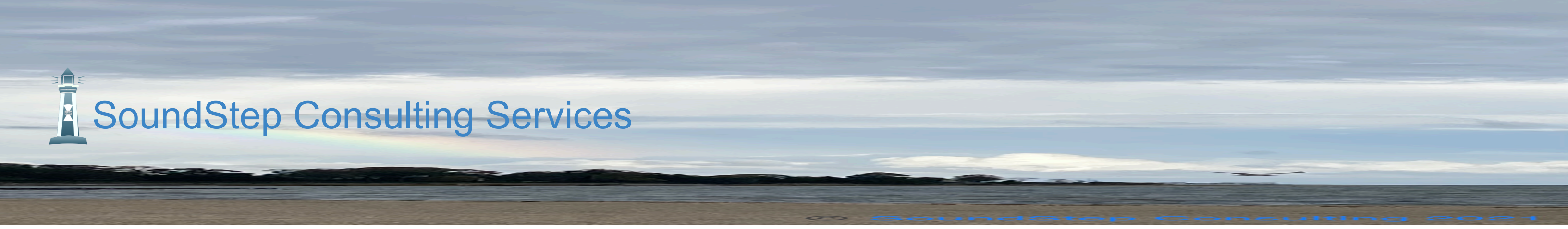
There is a need for these game creators and manufacturers to open their eyes and help in the creation and nurturing of altruistic goals. Altruism is an important lifelong value that must be learned as early in life as possible. There are parents, guardians, teachers, community and church leaders, and many others of different vocations and walks of life that want to raise wholesome children, and want altruistic games.

A cooperative game for example that has a goal to deliver critical supplies after a hurricane, or create drones that monitor and put out wildfires, or construct homes and buildings that withstand earthquakes and hurricanes can be made just as exciting and thrilling.

Promoting altruism is every person's responsibility.







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