



The How, Why and What to Drive Health Behaviour Change

JackHabbit's Philosophy 2022

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This white paper was a collaboration of many dedicated people who care about helping individuals flourish in life through evidence-based technology under a comprehensive model.

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EXECUTIVE SUMMARY

This whitepaper is intended for health insurance executives, health content providers, government officials, health enthusiasts, experts and groups interested in purchasing a solution that is powered by true evidence-based behaviour change science, with specific consideration for the privacy and security of users and their data.

Very few solutions use strategies grounded in science or know how to effectively integrate behaviour science strategies. The purpose of JackHabbit is to support people as they work to develop a new health behaviour into a habit, reforming a lost health habit or sustaining a health habit.

The JackHabbit platform and products have the ability to be customized and use a combination of machine learning, artificial intelligence, behavioural science, and persuasive design to best fit the target population it is serving.

Looking ahead JackHabbit could be used in various health domains, including healthcare, life insurance and drawing in other products that need an individualized experience.

This whitepaper explains the philosophical underpinning of the JackHabbit platform exploring the how, why, and what of behaviour change and how they have been integrated.

Several evidence-based behavioural strategies scales were relied on to inform what is favored in the digital health space.

Three key driving factors necessary for successful and sustainable behaviour change are identified, those being Confidence, Optimism, and Motivation.

Six guiding principles are presented: **P**rogress that is understood to be nonlinear and instead requires **H**olistic planning, **A**utonomy, **S**ocial support, **E**vidence-based, and **S**elf-awareness (known as PHASES).



TERMS OF REFERENCE

JackHabbit:

JackHabbit is a technology company that combines machine learning, artificial intelligence, behavioural science, and persuasive design to develop a digital platform (also titled JackHabbit) that provides every individual user the right tools to live a flourishing life.

The Behavior Review Scale:

The behaviour review scale is made up of 28 behavioural strategies that can be incorporated into digital platforms. These strategies support each of JackHabbit's six guiding principles and ultimately promote durable habit formation to aid the user's behaviour change experience.

Driving Factors:

Confidence, Optimism, and Motivation are considered to be the driving factors of behaviour change. Without optimal levels of each of these factors, individuals will likely experience difficulty when changing behaviours and forming habits.

Guiding Principles:

Six guiding principles are presented that demonstrate JackHabbit's philosophy of behaviour change. These guiding principles presented as PHASES are supported by the various behaviour review scale strategies and help to increase and optimize the driving factors.

Console Case Example:

Console is a digital solution developed by JackHabbit. In this case example, Alasia experience is presented, a student struggling with perfectionism and anxiety surrounding academics, and how the Console platform can support Alasia.

JACKHABBIT

What is JackHabbit?

JackHabbit is a technology company that creates individualized digital products for partners and clients. JackHabbit values and attains the protection of personal data and the upkeep of ethical and privacy standards, setting us apart from others in the field.

The JackHabbit platform offers tools to aid users in creating durable habits, overcoming life challenges, and building resilience, so that they can live a flourishing life. These tools provide users with lesson material, opportunities to self-reflect, and turn the behaviour change experience into a purposeful and permanent pursuit. Products are designed to provide an easy-to-access, inclusive, and positive virtual environment that encourages user motivation and growth.

At JackHabbit, we provide partner companies (Leaders) the means to deliver to their users (Learners) customized content that best reflects their needs and goals. The JackHabbit platform allows leaders to build and serve their products. Thus, all of the users of JackHabbit products (both Leaders and Learners) are met with resources that match where they are in the moment, in the format they want, with the content and individualized support they need. Most importantly, as users grow, JackHabbit products adapt and grow with them.

JackHabbit's company values have helped shape a unique "growth mentality" approach; this is used to inform all product development.

These values include:



Integrity:

JackHabbit products are created to align with ethical standards, and product decisions prioritize respect and privacy for the user.



Diversity:

JackHabbit products must allow users to feel empowered, encouraged, valued, equal, and included.



Sustainable Growth:

JackHabbit products allow users to experience personal growth at a pace that is viable in the long-term.



People-first approach:

The JackHabbit platform and products acknowledge each user as an individual with unique context and needs. As a result, product decisions are made with the user in mind.

Guided by our values, JackHabbit incorporates four core elements into developed products to support user resilience and adaptability:

1. Implement a **growth management system** that builds skills through education and immersive activities.
2. Strive to deliver an **individualized experience** by acknowledging that each user has different experiences, preferences, contexts, and needs.
3. Address **total health** (mental, physical, social, financial, and psychological components) and recognize that health and well-being are multi-dimensional, interactive, and complementary.
4. Everything is **evidence-based**, ranging from behavioural design to the content delivered to users. See the research team here: <https://jackhabbit.com/team>



JackHabbit's Mode of Operation

The JackHabbit platform implements an intuitive **Growth Management System (GMS)** that converts traditional learning content into an adaptive experience. In addition, we use an evidence-based approach to inform design decisions, facilitate valuable interactions, and engagement between users and the technology.

The JackHabbit GMS has the ability to support a wide variety of integrations, including content-based lessons, journaling, self-assessment, skill development opportunities, understanding of the need for certain insurance products and one-to-one professional support. By combining machine learning, artificial intelligence, behavioural science, and persuasive design, we can utilize users' interactions with our products to deliver content that matches their individual preferences and needs.

The JackHabbit GMS studies the user's interaction trends on the platform and compares those to established baselines and anonymized aggregated data from other users to deliver an individualized experience.

The JackHabbit GMS learns from users as they engage with the platform, and these insights are fed back into each new interaction. This process allows the JackHabbit GMS to individualize all aspects of the user experience, from design elements to recommendations for content engagement and individualized interventions.

As an example, if a user interacts more with video content than written content, the JackHabbit platform could recommend video content more often than written content. Additionally, identifying the frequency and duration of each individual's interaction with the JackHabbit system allows for tailoring of the content recommendations to reflect this. If a user spends one hour every day interacting with the JackHabbit system, shorter spurts of content would be recommended compared to someone who interacts for 3 hours a week but only on one specific day.

BEHAVIOUR REVIEW SCALE

While a considerable number of online behaviour change platforms are available, there has been minimal work done to evaluate which platforms are efficient at changing behaviour and identifying effective strategies that should be implemented across applications. To rectify this, JackHabbit, in union with JackHabbit's research team, developed the Behaviour Review Scale (Alslaity et al., 2022) to evaluate apps' behaviour change potential, and inform the development of high-quality products.

The Behaviour Review Scale was created based on two established behaviour change models: the App Behaviour Change Scale (McKay et al., 2019) and the Persuasive System Design (Oinas-Kukkonen & Harjumaa, 2009). Both models have been used to measure the behaviour change potential of various digital platforms in the health and wellness field.

This includes platforms concerning physical activity engagement (Monteiro-Guerra et al., 2020), atrial fibrillation self-management (Pearsons et al., 2021), adolescent depression (Parada et al., 2020), and weight loss (Asbjørnsen et al., 2019). The Behaviour Review Scale comprises 28 behaviour change strategies described below.

Each strategy was expertly selected based on its applicability to behaviour change interventions and popularity in the health, insurance and wellness field (Alslaity et al., 2022). It was found that the platform's ranking on their respective app stores increased as its use of the corresponding strategy increased. Therefore, it is recognized that there is a fundamental importance to each strategy.



Behaviour Review Scale Strategy Descriptions

Customization/personalization

The platform delivers personalized content and services to the user.

Expertise creation

The platform was created incorporating evidence-based research, expert opinions, and is consistent with national guidelines.

Baseline information

The platform collects baseline information during first use so that it can be used to direct content delivery, evaluate change, and/or track progress. Information might include body mass index (BMI), weight, smoking rate, exercise, insurance needs or drinking behaviours.

Instruction on how to perform behaviour

The platform provides clear instructions and guidance on the behaviours seeking to be changed and any behaviour that supports the user's behaviour change. This can be done verbally, through video, or in written form.

Information about the consequences on continuing/discontinuing behaviour

The platform provides users with information detailing the consequences and benefits of various behaviours relating to their desired change.

Willingness for behaviour change

The platform allows users to describe their readiness for behaviour change.

Goal setting

The platform allows users to set behavioural change goals and subgoals.

Review goals, update, and change when necessary

The platform allows for users to review and assess their behaviour change goals throughout their use of the platform.

Understand the difference between current action and future goals

The platform provides an opportunity for users to see their current progress on their goals and to understand the connection between their current actions and their behaviour change goals.

Self-monitoring

The platform allows the user to monitor their activities on a regular basis.

Allows for social comparison

The platform allows users to share their behaviour change progress to see how they compare to others. This can be facilitated using social media, internal forums, or a leaderboard.

User feedback

The platform is able to deliver users feedback, comments, or data relating to the user's behaviours. This information can be automatic or personalized.

Export data

The platform allows for user data to be exported.

Rewards/incentives

The platform delivers rewards to the users for achieving behavioural accomplishments or for attempting target behaviours.

Praise

The platform delivers encouragement on activities relating to a user's behaviour change goals.

Reminders/prompts

The platform delivers prompts and reminders to the user to engage in activities supporting their behaviour change experience.

Encourage positive habit formation

The platform enables users to rehearse and repeat target behaviours.

Practice or rehearsal in addition to daily activities

The platform does not restrict the number of activities a user can exceed in a day.

Opportunity to plan for barriers

The platform prompts users to think about potential future barriers so that they can identify potential ways to overcome them.

Restructuring the physical or social environment

The platform encourages users to alter their environment in support of their behaviour change experience.

Distraction or avoidance

The platform provides users with suggestions and advice on how the user might want to avoid situations or distractions that could impair their behaviour change experience.

Reduction

The platform allows for complex behaviours to be broken down into smaller tasks to aid the user in performing target behaviours.

Suggestion

The platform offers the user suggestions relating to their behaviour change goals.

Trustworthiness

The platform is viewed as trustworthy by the user.

Cooperation

The platform encourages users to engage in target behaviours by working together with others.

Recognition

The platform offers recognition to individuals or groups of users for engaging in behaviours relating to their behaviour change goals.

Normative influence

The platform uses normative influence or peer pressure to encourage users to engage in target behaviours.

Third-party endorsements

The platform incorporates well-known third-party endorsements.



JACKHABBIT'S DRIVING FACTORS OF BEHAVIOUR CHANGE



Behaviour change is guided and determined by many variables; however, three consistent drivers stand out in the literature and the focus of JackHabbit's behaviour change philosophy. JackHabbit's driving factors of behaviour change are Confidence, Optimism, and Motivation. These three driving factors contribute and interact with one another to support an individual's overall behaviour change experience. While overlap exists, each driving factor is distinct and so, all factors are required in combination to facilitate behaviour change.

Confidence describes an individual's belief in themselves and in their abilities to perform and manage the behaviours required for change (Toukhsati et al., 2020).

Optimism allows individuals to have hope that their behaviour change experience will be successful now and in the future (Carver et al., 2010).

Motivation refers to the processes and internal drivers that initiate, guide, and maintain goal-oriented behaviour (Cook & Artino, 2016).

When individuals have high confidence, optimism, and motivation levels, they can approach challenges with thoughtful and realistic intentions, helping them further succeed in their behaviour change experience.

The JackHabbit platform implements various behaviour change strategies designed to increase, maintain, and optimize these driving factors.

Confidence

Confidence is one of the most established determinants of behaviour change. Confidence refers to an individual's belief in their ability to execute and satisfy situational demands relating to the completion of a behaviour (Bandura, 1977). When applying this construct to behaviour change, it is unmistakable that individuals must be confident in their ability to execute and manage the behaviours that they are trying to transform.

Confidence can be broken down into two forms that are both required to support an individual's behaviour change experience. These forms are task and self-regulatory confidence.

First, individuals must have sufficient task confidence. That is, individuals must be confident that they can perform the required activities that support their behaviour change goals under optimal conditions. If this type of confidence is lacking, individuals are less likely to start doing the behaviours needed for change to happen.

Secondly, individuals must also have sufficient self-regulatory confidence. This form of confidence indicates that individuals must also be confident in their abilities to manage the required activities and demands needed to support their behaviour change goals. Without self-regulatory confidence, individuals will be unable to sustain change over time (Bouchard et al., 2018).

Sufficient task confidence is a prerequisite for self-regulatory confidence. If an individual is not confident that they can walk to the end of the street (task confidence) it does not matter if they are confident in their ability to fit a walk into their schedule (self-regulatory confidence) because they do not believe that they can do the behaviour. It would be unproductive to address their self-regulatory confidence before first focusing on their task confidence.

It is important to mention that both forms of confidence are still needed to facilitate behaviour change. If they are confident in

their ability to walk to the end of the street but unable to manage their time to allow it, they will not successfully build the habit.

The importance of confidence in behaviour change was first established in Bandura's (1977) self-efficacy theory. Bandura theorized that if the individual's confidence in their ability to perform and manage a behaviour could be increased, the likelihood of them completing the behaviour would also increase. This notion has been used within many areas of health and well-being, as confidence can predict behaviour change and treatment success in health domains including chronic disease (AL-Harithy & Wazqar, 2021), substance use (Filiz & Polat, 2022), and exercise (Bauman et al., 2012). Furthermore, in student populations, higher confidence has been connected to higher academic engagement (Oriol-Granado et al., 2017) and academic performance (Honicke & Broadbent, 2016; Lei et al., 2022).

In order to support behaviour change, individuals must have sufficient confidence in their ability to perform the behaviour and manage the situation demands required for change. Research suggests that to address and increase both task and self-regulatory confidence, behaviour change interventions should include social persuasion and provide opportunities for users to gain mastery experiences and education in the area of change (Gebauer et al., 2019). The guiding principles presented further on will elaborate on methods of increasing, optimizing, and maintaining this driving factor.



Optimism

Optimism is a mindset that positively influences how an individual views the world, its events, and the future. Optimistic individuals usually think positively and envision advantageous outcomes to occur. Pessimism is the opposite of optimism and involves viewing aspects of life with a negative lens. These mindsets play a vital role in one's behaviours and can alter how someone approaches problems and copes with life's challenges (Conversano et al., 2010).

Research has found that individuals with a pessimistic mindset are less persistent and are more likely to engage in avoidant coping and health-damaging behaviours, all of which can lead to premature feelings of failure (Carver et al., 2010). Additionally, individuals with a pessimistic mindset often find it difficult to imagine the possibility of future change, thus making behaviour change undesirable and unattainable.

Optimistic individuals are often goal-oriented (Geers et al., 2009), better at managing multiple goals at once, and can more easily identify how their efforts should be divided (Segerstrom & Solberg Nes, 2006). A 2014 literature review observing the benefits of optimism found that higher levels of this mindset are related to more noteworthy career successes, social relationships, and physical health (Carver & Scheiler, 2014). In academia, optimism levels are positively associated with grade point average and college retention rates (Solberg Nes et al., 2009).

It is important to avoid an all-or-nothing view when using optimism. Dweck (2016) proposes that the way individuals view themselves is of great importance. Someone who believes that their qualities are innate and unchangeable (i.e., in a fixed mindset), will face difficulty changing their behaviours. However, someone who believes that practice and action can

help develop their qualities (i.e., in a growth mindset) will be more successful in changing their behaviours. Mindset is a continuum, and one can move from a fixed mindset to a growth mindset.

Moving from a fixed mindset ("I am/am not optimistic") towards a growth mindset ("I can work to become more optimistic") encourages individuals to take on more challenges and learn from them allowing them to change their behaviours, learn from their mistakes, and work towards their goals.

An optimistic mindset enables individuals to think of their future positively, and also protects against setbacks that may occur. To improve this driving factor, research recommends that individuals take part in behavioural interventions that target social connectedness, self-esteem, and reflection (Cheung et al., 2016). The guiding principles will further describe JackHabbit's method to increasing, optimizing, and maintaining optimism.



Motivation

Before an individual can change their behaviour, they must first understand the value associated with making the change and have the energy needed to do so.

Motivation is the energy that directs behaviour to promote said change. Motivation is influenced by goals, and when an individual is motivated, they act and persist in such a way that helps them satisfy and work towards these targets. This drive to fulfill a need, grow, or receive pleasure is fueled by physiological means (i.e., toward health, well-being, and safety) or psychological means (i.e., toward accomplishment, self-esteem, and belonging).

Two types of motivation can drive behaviour change: intrinsic and extrinsic motivation.

Extrinsic motivation involves engaging in a behaviour to avoid a punishment or receive a reward. The motivators, in this case, are external to the individual.

Intrinsic motivation is defined as engaging in actions for the desire to perform the behaviour and experiencing satisfaction as a result of completing said behaviour. With intrinsic motivation, the motivators are internal to the individual.

Both forms of motivation effectively support behaviour change; however, intrinsic motivation

is more sustainable over time. Those motivated by intrinsic factors, such as growth and pleasure from the work itself, are more persistent than those motivated by extrinsic factors such as rewards, career advancement, or status (Ho et al., 2016).

A lack of motivation can be triggered by many things, including disinterest in the behaviour and not valuing the possible outcomes enough to change. Change takes effort, time, and energy. People frequently juggle multiple commitments simultaneously, resulting in health behaviour change not being prioritized.

One method to increase the prioritization of health behaviour change activities is to connect and align behaviour change goals with one's values system. When a change is linked to one's value system, they are more likely to be interested and sustain change in themselves.

To successfully change behaviours, an individual must be inspired toward their goals and participate in activities that promote this.

JackHabbit encourages users to connect behaviour change goals and value systems. The guiding principle presented below will further build on an approach to increasing, optimizing, and maintaining motivation.



GUIDING PRINCIPLES

JackHabbit's guiding principles are connected to the driving factors and the behaviour review scale strategies. These six guiding principles represent JackHabbit's philosophy of behaviour change and are based on JackHabbit's values, expert opinion, and current research.

The driving factors and guiding principles influence the approaches used by JackHabbit when working towards behaviour change (the WHY). The behaviour review scale strategies represent how to achieve behaviour change (the HOW). The guiding principles are supported by the behaviour change strategies and work to increase and maintain an individual's confidence, optimism, and motivation.

JackHabbit's guiding principles of behaviour change include **Progress** that is understood to be nonlinear and instead requires **Holistic planning**, **Autonomy**, **Social support**, **Evidence-based**, and **Self-awareness** (known as PHASES).

PHASES:

Progress is not linear; Holistic; Autonomy; Social Support; Evidence-Based; Self-Awareness

One's environment plays an important role in making or sustaining a health behaviour change. There is a constant flux between the different phases of behaviour change as one's environment is ever-changing and can alter the path to the formation of a health habit. These guiding principles help support an individual's behaviour change experience by assisting them to create and build up the environmental needs required to be successful. Transitioning through the behaviour change process will require all of these principles, and sometimes, moving back and forth between them is necessary.

Progress is Nonlinear

A common assumption about behaviour change is that progress is gradual and linear. However, evidence across disciplines demonstrates that behaviour change occurs in discontinuous and non-linear ways (Hayes et al., 2007; Ho, 2016; & Harvey et al., 2022). Life is unpredictable, and while individuals can plan ahead for some situations, others are impossible to anticipate.

Growth will come in different waves and individuals will reach milestones at different rates. Failure and setbacks should be expected and seen as part of the process. Normalizing the fact that setbacks occur and designing the JackHabbit platform and subsequent products around this premise increases success in behavioural change.

Health research shows that setbacks and lapses in progress frequently occur, in areas ranging from smoking cessation (Vidrine et al., 2016) to physical activity (Schumacher et al., 2017). When behaviour change platforms do not address setbacks adequately they can discourage users and cause them to lose confidence, optimism, and motivation in their behaviour change experience. Normalizing setbacks and emphasizing that they are part of the change process enable users to take comfort when setbacks occur.

This concept may also reduce rumination and instill the idea that setbacks are part of the process, and NOT a reflection of one's ability to succeed.

Another risk of not normalizing failure is an individual moving into a state of hopelessness. Someone in this state might find themselves experiencing negative futuristic expectations, thoughts, and cognitions (Beck et al., 1974). Individuals experiencing hopelessness may adopt the belief that they cannot change their current behaviours, and taking action to do so will be unsuccessful.

Failing to acknowledge the nonlinear nature of behaviour change risks users' progress and mental health. If an individual believes that setbacks are part of the process, they are more likely to believe that failure, setbacks and delays are temporary and that they will be able to persevere and overcome them. This belief may promote individuals' to be more confident in themselves and optimistic of their behaviour change success.

Behaviour Change Strategies supporting Progress is Nonlinear

- Customization/personalization
- Opportunity to Plan for Barriers
- Praise
- Suggestions
- Review goals, update, and change when necessary

Holistic Plan

Everyone has different thoughts, feelings, values, temperaments, and experiences that impact their social, mental, emotional, and physical well-being. However, traditionally most digital health platforms have supplied users with a one-size-fits-all 'package' (Goulding et al., 2019). This approach neglects the unique characteristics of the individuals interacting with their platforms.

For interventions to be successful in fostering behaviour change, each individual deserves and requires a holistic plan that is individualized to them and their lived experiences.

Non-medical factors, frequently referred to as the Social Determinants of Health, can impact one's well-being and wellness journey. It is important to consider the influence of various user characteristics, such as race and culture, the underlying factors that inhibit a person's ability to practice healthy habits.

JackHabbit strives to continuously improve its data collection to ensure it is representative of all populations and users, this is to ensure that success is not limited to one population but rather all who use the platform.

For a holistic plan to be delivered to an individual, the individual must first be understood. There are multiple ways that users can provide information, so that content can be individualized to their needs and learning style. This could include health behaviour and/or demographic 'on-boarding' assessments designed to establish baseline information.

In addition, users are also able to further influence the individualization of content and resources by having truthful interactions with the various self-reflection and logging tools.

Content and services can be delivered using videos, written content, group support, one-on-one support, and asynchronous content. It is acknowledged that a format that is effective for one person may be ineffective for another.

The JackHabbit platform is equipped to include various forms of multimedia and suggest content recommendations to match the mode of delivery to what is most beneficial to the user.

One's value system must be connected and incorporated into their holistic plan. Recent research has demonstrated that focusing on core values and pursuing value-based goals lead to better outcomes than when goals are not formulated within the individual's value system (Davies et al., 2021). Individuals tend to live their lives and make decisions that align with their values.

One-size-fits all approaches do not effectively support individuals as they change behaviours and thus to facilitate change, interventions need to be holistic and consider the users' past experiences, accessibility, preferences, needs, goals, and values.

Behaviour Change Strategies supporting Holistic Plan

- Customization/Personalization
- Baseline Information
- Suggestions
- Willingness for Behaviour Change
- Goal setting

Autonomy

Autonomy can be defined as a user's ability to make informed decisions about their health experience, feel in control of their experiences, and have control over the privacy and confidentiality of their information (based on Varkey, 2021). The ethical principle of autonomy is well-established in traditional health but is less established in the digital world (Schmietow & Marckmann, 2019). Nevertheless, user autonomy is critical to behaviour change as it ensures that individuals are involved and in control of their experience. Protecting users' autonomy is imperative, given that most digital apps share users' data with third parties without accurately explaining it in their privacy statements (Huckvale et al., 2019).

It is important to place specific consideration on a user's right to their information being kept private, confidential, and accessible at all times. Despite the recent rise in digital health and well-being platforms, many people do not understand how digital platforms operate and how to best protect their information. This lack of understanding can create fear and distrust in many people, and become a barrier to accessing this form of support. Specifically, many people are hesitant to interact with digital platforms as they are concerned about privacy risks (Ryu, 2018; Sinha et al., 2021).

It is important that the JackHabbit platform builds trust with users so that they can respond truthfully when interacting with the various tools on the platform. Truthful interactions allow for content and resources to be individualized to the users and reflective of their current needs.

Autonomous people are often best positioned to make decisions and determine the most appropriate path for them as an individual (Summer, 1996). With thousands of different well-being interventions and resources available, people may be overwhelmed with options and wonder where to start.

JackHabbit's adaptive system helps narrow down and organize the resources available by making suitable suggestions to users, similar to how a peer counsellor or coach would listen and make recommendations.

Even though users are recommended content based on the information they input, all content is available if they wish to engage with it. Additionally, content can be revisited as often as desired by the user.

JackHabbit prioritizes the users' privacy and confidentiality by implementing a privacy-by-design approach. This allows JackHabbit to protect user's information and data proactively rather than reactively. Additionally, in line with Canadian privacy legislation, users have the right to access, correct, and delete any information that has been collected, giving users autonomy over collected data and access to said data.

JackHabbit users have control over what content they interact with, whether that be following along with suggestions, exploring non-suggested content, or revisiting old content and resources. Users need confidence in a platform knowing that their information is kept confidential and private, helping them feel safe when inputting the information needed to provide a holistic and individualized experience.

Having a sense of autonomy in their behaviour change experience will allow users to feel more in control and sure of themselves and their ability to change. This increases their confidence, optimism, and motivation in the changed behaviour and allows them to feel motivated to sustain the use of the platform.

Behaviour Change Strategies supporting Autonomy

- Customization/Personalization
- Goal Setting
- Review goals, update, and change when necessary

Social Support

Social support has a positive impact on one's behaviour change experience. This is because changing a behaviour can feel isolating if you are going through it alone, further contributing to the difficulty of the process. Many models have failed to incorporate or stress the importance of social support when trying to stop or start a behaviour.

Social Support can occur in various forms described as emotional, practical, and informational support (Stewart et al., 2021).

Emotional support refers to the support given to an individual that allows them to feel comforted and encouraged (Laidsaar-Powell et al., 2016), such as receiving a motivational message following a setback. Emotional support can be overt (e.g., encouragement while engaging in behaviours relating to change), delayed (e.g., praise after engaging in behaviours), or intangible (e.g., instilling the feeling of not being alone).

Practical support refers to the support delivered to an individual that can assist with planning or reminding them of their goals and holds them accountable for the actions related to their behaviour change (Stewart et al., 2021). This could be receiving reminders such as notifying you that your bedtime is approaching or having a partner to help keep you accountable for adhering to a workout schedule.

Informational support refers to providing an individual with guidance, expertise, and information that contribute to their knowledge and confidence in them achieving their behavioural change goals (Stewart et al., 2021). This information can be delivered via verbal, video, and written content. This support could also include behavioural modelling, where individuals learn different behaviours from observing others (Bandura, 1969).

The JackHabbit platform and subsequent products have the ability to allow individuals to have access to individual-to-individual support (e.g., through peer support) and system-to-individual support (e.g., prompts and praise) to maximize the user's potential to succeed. Having personal or system-related support can help individuals feel less "on their own" in their behaviour change experience, increasing motivation to keep up with specific activities.

Support using evidence-based information can increase the users' task confidence in their ability to perform the activities relating to change. When times get tough a friendly reminder that everything will be ok could be what it takes to keep someone from quitting. It is essential that individuals have a place to go to when they have questions, need a pick-me-up, or just someone to share their thoughts with. JackHabbit is dedicated to facilitating and creating these supportive spaces for users so that they receive the correct type of support at the right time.

Behaviour Change Strategies supporting Social Support

- Allows for social comparison
- Praise
- Reminders/prompts
- Restructuring the physical or social environment
- Recognition
- Normative influence
- Cooperation



Evidence-Based

For a platform to be evidence-based, it should rely on, be created using, and operated based on high-level, peer-reviewed research. Including evidence-based methods in digital platforms helps to prevent the use of unsafe and inefficient strategies while also improving the quality of the platform (Cardoso et al., 2021). Evidence-based platforms are more effective in impacting the health and wellness of their users as opposed to their non-evidence-based counterparts.

Several reports have expressed the need for more evidence-based digital health and wellbeing interventions and for these interventions to continuously assess their efficacy (Byambasuren et al., 2018; Chandrashekar, 2018; Jandoo, 2020; Ehn et al., 2021).

Many digital apps and platforms are available claiming to be beneficial to their user's health and wellness, however, there are questions about the actual efficacy of these products. A study evaluating 73 mental health apps found that despite using scientific language in their descriptions, most apps were not created using evidence-based findings (Larsen et al., 2018). Surprisingly, they found that only two apps described low-quality evidence to support the use of the app, and only one app included a citation to published literature.

When a behaviour change platform is not evidence-based, it can deliver improper suggestions and strategies that can cause unintentional harm to the user. A program that is not evidence-based may offer unhealthy and unsustainable suggestions, leading to failure or the development of harmful habits. Situations like this likely happen unintentionally; however, it also reinforces the importance of continuously monitoring platforms and the impact they have on users.

Often, individuals will put off changing their behaviours because they do not know where to start. Someone who wants to incorporate fitness into their lifestyle might feel apprehensive about starting to go to a gym because they do not know how to use the equipment. An evidence-based platform like JackHabbit can offer individuals in-depth, reliable information such as how to use gym equipment. This information can be what the individual needs to start and continue a behaviour leading to the formation of a habit.

An evidence-based platform has the ability to create a sense of trust between it and its users. Platforms that are viewed as trustworthy have a greater impact on their users' behaviour change as individuals can get the most out of the technological methods (Thiebes et al., 2020). This principle can be important as users can be confident in the information they are receiving. When strategies are supported by research, individuals are often more motivated to engage with the platform and are more optimistic that their engagement will benefit their behaviour change experience.

Hesitancy to start a new behaviour is often a result of a lack of confidence. When users believe and trust the information they are being provided, they will be more likely to follow along with the suggestions and more confident in their abilities to participate in the behaviours. The trust associated with evidence-based platforms influences users to be motivated to sustain use and optimistic that the use will be beneficial to them.

JackHabbit has committed to ensuring that all information and strategies provided on our platform and through our products are evidence-based.

Behaviour Change Strategies supporting Evidence-Based

- Expertise creation
- Instruction on how to perform behaviour
- Trustworthiness
- Third-party endorsements

Self-Awareness

Self-awareness is a reflective process in which individuals focus their attention inward on the self rather than outwardly on the environment (Duval & Wicklund, 1972). Self-awareness is vital for individuals to develop as it allows for a heightened state of awareness toward internal states like emotions, cognitions, and physiological responses (Carden et al., 2022). Self-aware individuals also have the ability to understand what internal states influence and drive their behaviours, such as their beliefs, values, and motivations.

To initiate behaviour change, one must first recognize that they need to change their behaviour and the benefits of changing. Without self-awareness, this is unlikely to happen. JackHabbit encourages development of self-awareness across the entire behaviour change process.

Self-awareness is a skill that can be learned and practiced allowing it to become habitual and have a positive impact on behaviour change. Notably, the process of developing self-awareness is an ongoing process that includes a continuous expansion of thoughts, feelings, and beliefs (Rasheed et al., 2019). Self-awareness can be developed and improved by focusing on the self (i.e., understanding thoughts, feelings, and motives), self-evaluation (i.e., through introspection and reflection), and external feedback (i.e., understanding others' perceptions of them) (Carden et al., 2022).

Recent research has demonstrated that those with low self-awareness have more difficulty maintaining motivation (Castine et al., 2019). Additionally, increased bodily self-awareness is associated with increased well-being, life satisfaction, and lower levels of stress (Rodríguez-Jiménez et al., 2022). Participant testimony from this study also connected heightened self-awareness and feelings of confidence, self-control, calmness, and hope. These findings suggest the importance of including self-awareness interventions in various aspects of life, including incorporating mindfulness into physical activity, journaling, setting time in daily routine for introspection, and intentional reflection during conversations with others.

Self-awareness is also vital for an individual's success once they start the behaviour change process, and they must continuously monitor their actions and goals to make changes when necessary.

Self-aware individuals are more likely to recognize the positive change over time. This recognition will likely lead to them being more motivated and optimistic in their ability to reach their behaviour change goals.

Behaviour Change Strategies supporting Self-Awareness

- Information about the consequences on continuing/discontinuing behaviour
- Willingness for behaviour change
- Review goals, update, and change when necessary
- Understand the difference between current action and future goals
- Self-monitoring
- Opportunity to plan for barrier

CONSOLE

Console is a holistic health and well-being platform developed in partnership with Studentcare | ASEQ, a leading student health and dental plan provider in Canada. Studentcare | ASEQ provides simple, empowering, and reliable service to more than 1,000,000 students from various student associations and post-secondary institutions across the country. They empower students by offering them the tools and knowledge required to make informed decisions about their health and finances.

Studentcare | ASEQ acknowledges that health care goes much deeper than health and dental plans and is dedicated to eradicating the stigma surrounding mental health while simultaneously promoting more widely accessible resources within student communities.

Console uses the principles of the Stepped Care 2.0© model, developed by Dr. Peter Cornish, and the JackHabbit GMS to provide students content and services that improve and optimize their mental and physical well-being, allowing them to thrive in both their academic and personal lives. Students face various challenges and high levels of stress throughout their studies, so Console includes mental health services that are both reactive (e.g., immediate support) and proactive (e.g., psychoeducation).

When interacting with Console, students can pick which services are right for them based on their needs at the moment. In addition, Console includes assessment tools that direct students to content and support services that best meet their individual needs.

Console allows students to monitor themselves continuously through assessments that are prompted periodically. JackHabbit is able to tailor the prompts based on the intention of the assessment and the advice of professionals in the health field. Thus, these prompts can range from occurring daily, monthly, yearly or anywhere in between.

Accordingly, students can keep an eye on their progress as it is tracked and readily available for them to look at whenever they would like. This way, they can see the impact of their efforts, thus increasing their self-awareness.

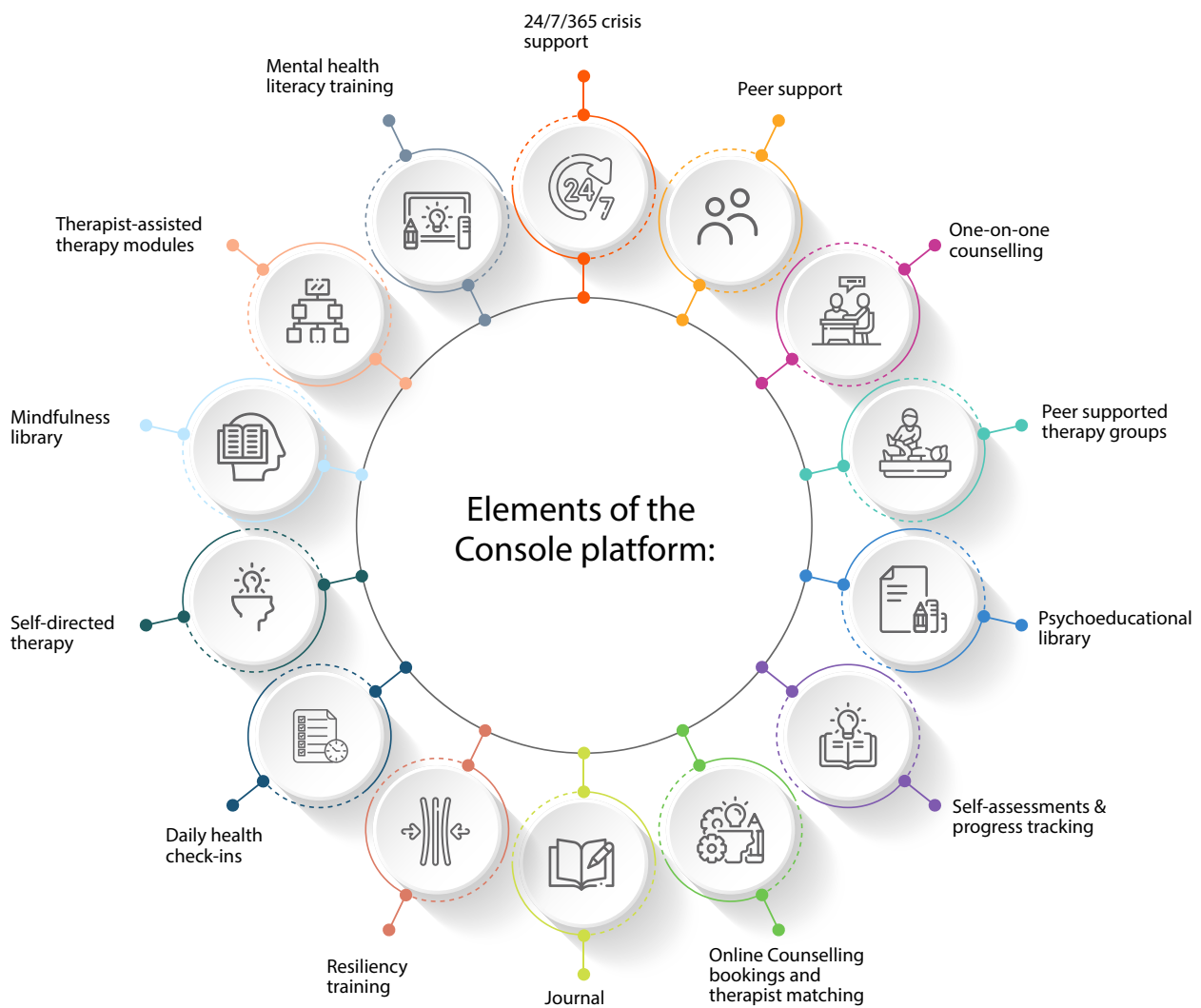
It is accepted that student needs transform over time, and Console is responsive to these changing needs. As a result, Console can individualize the recommended content and services as students interact with the platform.

Console provides students with psychoeducation on building suitable health habits and facilitates opportunities for students to connect with one another and with mental health professionals should the need arise.

Each Console element is included to best support the student users and target their motivation, optimism, and confidence in ways mentioned in previous sections. Notably, if a student identifies that they are in a crisis and need immediate support, Console can support them by directing them to the appropriate support.

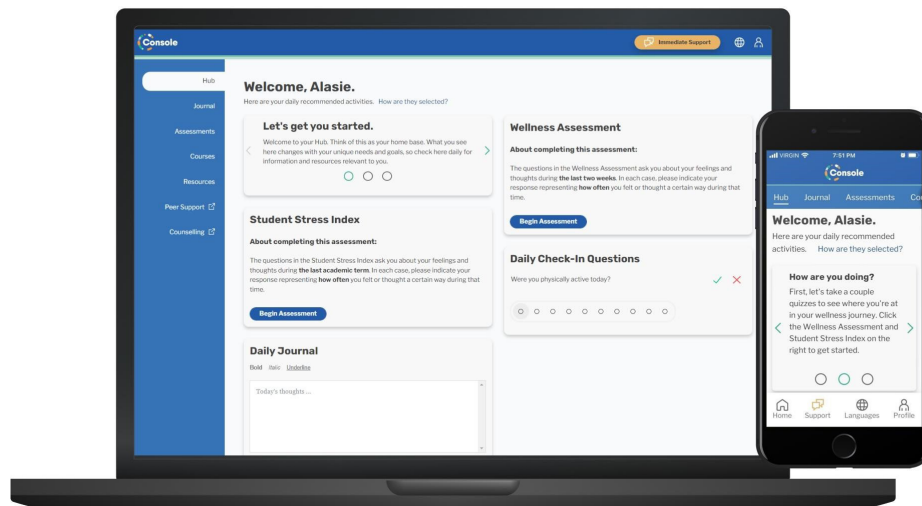
Console was designed in conjunction with a Student Advisory Board to ensure the student voice and priorities remained central in the design and build process. The Student Advisory Board continues to remain active in giving feedback as Console is rolled out, as new features are added, and as we collect data on the platform.

Not only this, but JackHabbit has a team of researchers well established in various behavioural science fields that have aided in the development and design features of Console. Console was developed by JackHabbit, StudentCare, researchers, and students to create an adaptive experience to provide post-secondary students with the unique devices they desire and require to succeed and flourish.

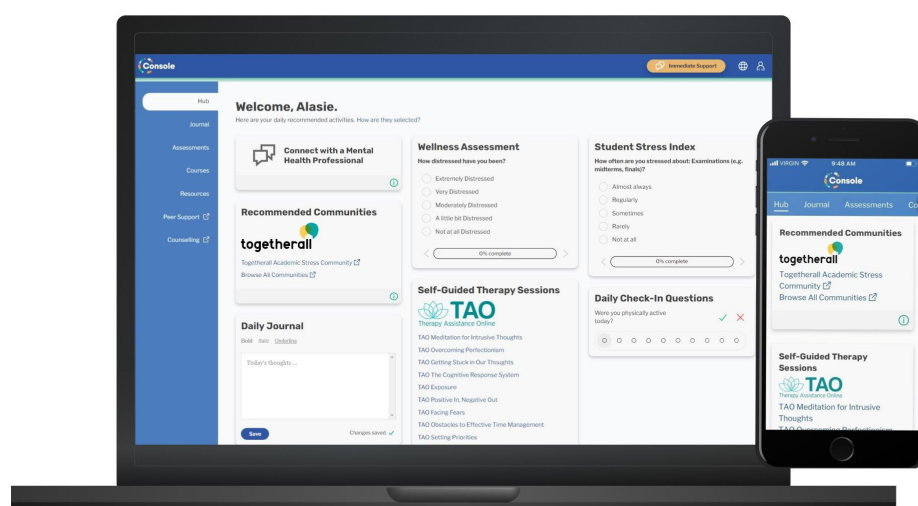


Case Example

Meet Alasie Ell-Kanayuh, an Inuit two-spirited post-doc student. Alasie is struggling with their studies and is overburdened with fear surrounding failing. Often, Alasie places a lot of pressure on themselves to do well in academics and tends never to be satisfied with their marks, no matter how well they do.

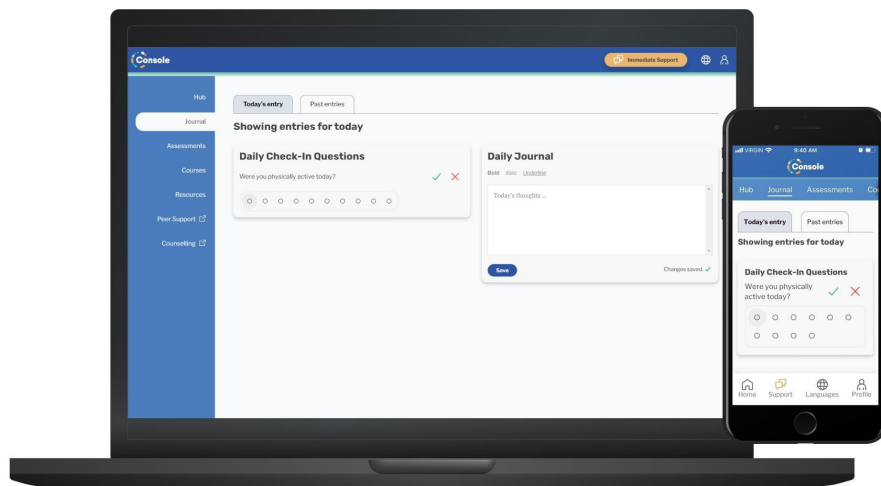


Upon Alasie's first interaction with the Console platform, they were prompted to complete the Wellness Assessment and Student Stress Index. Both assessments were developed based on the previously established assessment tools, the Behavioural Health Measure-20 (BHM-20) (Kopta and Lowry, 2002) and the Post-Secondary Student Stressor Index (PSSI) (Linden, Boyes & Stuart, 2022) respectively. Alasie is also prompted to complete the daily check-in questions and a daily journal entry. These elements allow Alasie to keep track of their progress throughout their time interacting with Console. Alasie is recommended content based on their initial responses. As they complete the various assessments, suggestions are tailored to match their reported needs.



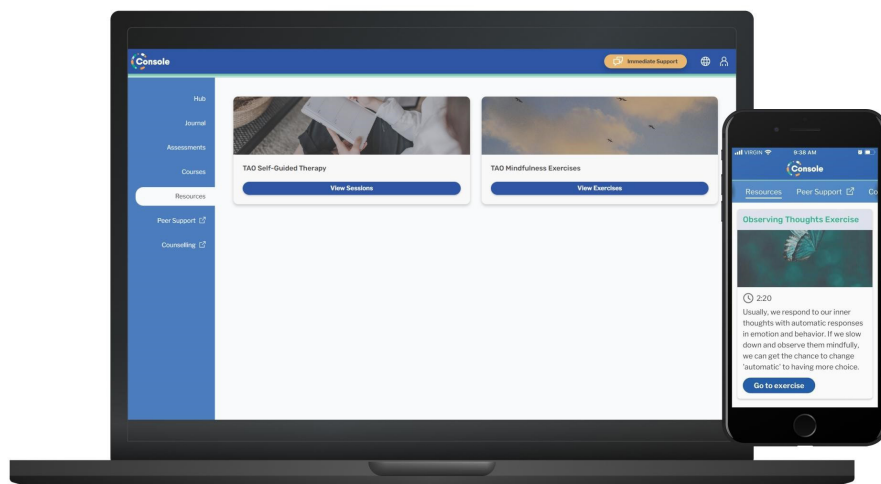
Alasie's responses to the Wellness Assessments suggest that they feel fearful and nervous in their day-to-day lives. Further, the Student Stress Index indicates that they are experiencing high levels of stress surrounding their pressure to succeed in school and meet performance expectations. Based on this, content and service recommendations are generated and delivered to Alasie. For example, they might be recommended self-guided therapy sessions for overcoming perfectionism, facing fears, and relaxation. Further, Alasie might be directed to a Togetherall community to interact with other students experiencing academic stress.

Importantly, if Alasie undergoes any well-being changes, these changes will likely be identified by their response to the assessments. Then based on their responses, they can be suggested content and services that reflect their in the moment needs.

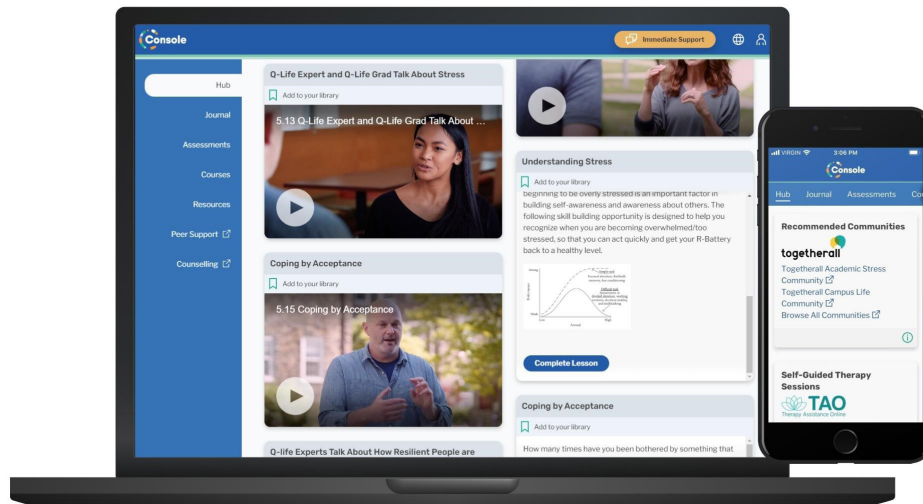


Alasie is prompted every day to complete a daily journaling log. This feature is a free text space where they can write whatever it is they are feeling, thinking, or experiencing. This allows them to reflect on their lives, current well-being, and progress on goals. Additionally, past entries can be accessed whenever Alasie wishes to view them. Thus, Alasie can monitor their progress and gain an awareness of any behavioural or emotional patterns that they have experienced.

The JackHabbit GMS has the ability to include natural language processing and sentiment analysis, in doing so, Alasie's well-being can be assessed, and any declines can be detected. Suppose Alasie was to express journal entries that suggest a decrease in well-being, Console could recommend content and services to best support them, such as self-guided therapy sessions or a link to book an appointment with a mental health professional.



All content and services available on Console are available to Alasie if they choose to do it. Additionally, Alasie can revisit content whenever they would like if they wish to return to it or as their needs change. For instance, if Alasie found that doing the self-guided therapy content for overcoming perfectionism helped manage their anxiety at the beginning of the school year. As exam period approaches, Alasie finds they are overwhelmed with anxiety again. With Console, Alasie can go back and revisit and redo these sessions.



As Alasie interacts over time with Console, content and services continue to be tailored based on their self-reported needs. As a result, the hub contains content and services that are determined to be most helpful in supporting Alasie's current needs. Additionally, started but not finished content is displayed on the hub so that it does not go forgotten.

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