**Behaviour Centred Design (BCD) Checklist**

The BCD Checklist is a basic tool which categorizes the various kinds of causal influences on behaviour. This can come in handy when doing behavioural observation, cataloguing knowns and unknowns at various points during program development (e.g., developing a formative research plan), or when developing a Theory of Change. Hence, a number of versions of this basic tool are included below to suit these various purposes or uses.

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# Basic BCD Checklist

This basic version is for use in the field or with a program team during Theory of Change development. The columns titles can be changed to suit one’s purposes. The current columns suggest interest in the current state of the factor, the desired state of that factor, a listing of ideas about how to convert the current to desired state, and aspects of that factor that remain unknown at this point in time. This would be important defining in the early stages of program development. See the *BCD Checklist at Individual and Institutional Levels* for definitions of the factors.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Factor** | **Sub-factor** | **Now** | **Desired** | **Change strategy** | **Unknowns** |
| **State-of-**  **the-World** | Aim |  |  |  |  |
| Objective |  |  |  |  |
| **Behaviour** | Current |  |  |  |  |
| Target |  |  |  |  |
| Who |  |  |  |  |
| When |  |  |  |  |
| Where |  |  |  |  |
| **Brains** | Executive |  |  |  |  |
| Motivated |  |  |  |  |
| Reactive |  |  |  |  |
| Discounts |  |  |  |  |
| **Body** | Traits |  |  |  |  |
| Physiology |  |  |  |  |
| Senses |  |  |  |  |
| **Behaviour Setting** | Stage |  |  |  |  |
| Roles |  |  |  |  |
| Routine |  |  |  |  |
| Script |  |  |  |  |
| Norms |  |  |  |  |
| Props |  |  |  |  |
| **Environment** | Physical |  |  |  |  |
| Biological |  |  |  |  |
| Social |  |  |  |  |
| **Intervention** | Touchpoints |  |  |  |  |
| Materials |  |  |  |  |
| **Context** | Programmatic |  |  |  |  |
| Political |  |  |  |  |
| Economic |  |  |  |  |
| Social |  |  |  |  |

# BCD Checklist at Individual and Institutional Levels

This version shows that the same sort of categorization of behavioural determination factors can be used at both individual and institutional levels of analysis. Importantly, it includes definitions of the factors in both cases.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **BCD Factor (Sub-factor)** | **Individual-level Component** | **Definition** | **Institution-level Component** | **Definition** |
| **State-of-the-World** | Objective | The state-of-the-world that has to be reached for a *performance* to be considered successful; as a shared goal, it permits *norms* to be enforced (Tharp and Gallimore 1988) | Mission | (Written) Guiding principle for institution as a whole |
| **Behaviour** | Routine | The sequence of behaviours regularly performed, typically in (roughly) the same order, to fulfill a *role* (Barker 1968) | Work-arounds | Patterns of activity designed to get around onerous or inefficient regulations |
| Standing pattern | The actual sequence of behaviours (regardless of *role*-player) that takes place during the *performance* of a setting (Barker 1968) | ---- | ---- |
| **Brain (**Executive) | Role | A functionally distinct tactic or strategy that, when enacted, helps a setting achieve its *objective*; actor ‘takes on’ a character and plays it out in a way dependent on the behaviour of other actors in a game-theoretic sense (Barker 1968, Shove et al. 2012) | Position/ Job/ Office | A functionally distinct tactic or strategy that, when enacted, helps an institution achieve its *mission* |
| Script | A particular individual’s (implicit) knowledge of a *routine* (i.e., about how to behave in a setting, or play a *role*) (Tharp and Gallimore 1988) | Procedures | (Written) Standard operating procedures |
| Norms | The informal rules governing role-play (more technically: deviation-correcting psycho-behavioural control systems active during a setting; based on interdependency of setting components, including *synomorphies*, and *motives* to fulfill *role*/*script*) (Barker 1968, O’Donnell, 1993) | Sanctions | Regulations governing performance of positions |
| **Brain** (Executive) | Planning/  Knowledge | Formal rules governing position-play | [Governance] Rules | Formal (e.g., written) Laws/ Constitutions |
| **Brain** (Motivated) | Motives | The motive(s) driving *role*-playing behaviour in a setting (i.e., the goal or benefit an individual hopes to gain from playing a *role*) (Tharp and Gallimore 1988) | Incentives (including financial) | Explicit rewards for reaching performance goals |
| **Brain** (Reactive) | Habits | Automatic reactions to environmental cues | ---- | ---- |
| **Brain**  (Action selection) | Discounts | The variety of opportunity costs used to reduce expected value (time/ financial costs/bodily energy required to perform behaviour, time before benefits can be accrued, etc) | Disincentives | Explicit punishments for failing to reach performance goals |
| **Body** | Characteristics | The qualities an agent must have to be eligible for a *role* (e.g., age, gender) | Requirements | The qualities an agent must have to be eligible for a *position* (e.g., age, gender) |
| Competencies | The (embodied) skills required to play a *role* (Shove et al. 2012) | Skills | The (embodied) skills required to play a *position* |
| **Environment** (Physical) | Stage | The‘stylized’/simplified physical environment necessary as a ‘backdrop’ to conducting a *performance* (Goffman 1959) | Place | The typically built-for-purpose facility that houses *routines* (e.g., factory floor) |
| Infrastructure | Relatively large physicalstructuresnecessary for performance but which are neither manipulated nor damaged through use (e.g., electricity, water) (Shove et al. 2012) | Structures | Large-scale physical arrangements for conducting activities (e.g., headquarters building, ‘campus’) |
| Props | Objects manipulated during the course of performing a *routine* (Goffman 1959, Barker 1968, Shove et al. 2012) | ---- | (Includes money) |
| **Environment** (Social) | [Other individuals] | [other individuals in the setting] | [other individuals in the place] | ---- |
|  | [Other groups] |  | Other units in the institution with which setting collaborates |  |
| ***External Context*** | *Organisational* | Membership of organisation in group (Industry/Guild) | ---- | Formal group of organisations |
| *Programs* | Other initiatives operating in the area that might impact on setting performances |  |  |
| *Secular trends* | Social, political, financial or technological processes influencing organisational operations |  |  |

Derivative concepts:

|  |  |
| --- | --- |
| *Performance* | A specific instance (time/place) in which a setting is executed; can include actions by a person, object or infrastructure (Barker 1968, Shove et al. 2012) |
| *Synomorphy* | The similarity of form between the pattern of activity and aspects of the physical organization of a place (Barker 1968) |

# BCD Checklist as Program Development Tool

This tool is designed to help with choices at several points in the program development process. First, it can help with the choice of formative research tools to fill particular voids in current knowledge about a particular determinant of a target behaviour during the Build step. Once an insight has arisen from a Creative Workshop (after FR), it can also help with the choice of change mechanisms as part of the developing Theory of Change. And then in choice of an ‘active ingredient’ or intervention component to cause the change mechanism to happen.

Note: Change mechanisms are primarily psychological in nature – the intended *consequence* of the intervention – while intervention components are primarily behavioural in focus, and delivered directly by some external agency. However, in some/many cases this is hard to distinguish.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Factor Type** | **Sub Type** | **Sub-sub Type** | **BUILD:**  **Formative Research Tools** | **CREATE:**  **Change Mechanisms\*** | **DELIVER:**  **Example Intervention Components\*** |
| **Behaviour** | Target(s) |  | Video Ethnography, Participant Observation, Behaviour Monitoring, Behaviour Trial, Behaviour Features/Functions Ranking |  | Practice/Rehearsal [M]; Self-monitoring [M;K]; Demonstration/Modelling [M;K]; Repeated exposure [K]; Graded tasks [M]; Substitution [M]; Change default behavioural option [BE] |
| **Brains** | Executive | Planning/ Imagination;  Knowledge/ Beliefs;  Identity | *Planning*: ‘Worry Box’, Financial Life, Food Choices, Decision Tree, Life History Q-sort, Hopes and Dreams  *Knowledge*: Belief Elicitation  *Identity*: Identity Map | *Planning*: Goal setting [M;K]; Action planning [M]; Vicarious consequences (Imaginary reward/punishment) [M]; Future outcome comparison (pro/con) [M]; Reattribution [M]; Focus on past successes [M]; +/- Framing [M]; Anticipated regret [M;K]; Cognitive dissonance [M]  *Knowledge*: Incompatible beliefs [M]; Elaboration [K], Chunking [K], Belief selection [K], Elaboration [K], Shifting perspective [K]  *Identity*: Self-affirmation [M;K]; Branding (link product use to identity) [BCD] | *Planning*: Contract/commitment [M;K];  Peer education [K], Discussion [K], Argumentation [K], Training executive function [K]  *Knowledge*: Education/Instruction [M]; Information about consequences [M], Risk information [K]  *Identity*: |
| Motivated | [15 motives] | Motive Mapping, ‘Three Wishes’ Exercise, Aspirational Figures, Forced Choice dilemmas, ‘Windfall’ exercise, ‘Wallet’ game, Prioritization Game, Photovoice, Vignettes | Accentuate primary motive [BCD], Add secondary value (e.g., moralize target behaviour) [BCD]; +/- Reward [M]; Reward goal achievement [M]; Reward alternative behaviour [M]; +/- Reward frequency [M];  Induce arousing situation [K]; Fear arousal [K] | Emo-demos [BCD], Persuasive communication [K], Empathy training [K], Induce satiation [M] |
| Reactive | Reflexes;  Habits | Word association test, Cue identification | +/- Stimulus (prompts/cues) [M]; Deconditioning [K], Counter-conditioning [K], Cue altering [K], Stimulus control [K], Classical conditioning [K] | Implementation intention [K] |
| Action Selection | Discount factors; Heuristics/Biases | Temporal discounting game, Forced choice games | *Discounts*: +/- Temporal discounting; +/- Financial cost; +/-; Uncertainty (overconfidence effect [BE]); +/- Mental effort [M]  *Heuristics/Biases*: Availability heuristic [BE]; Attribution bias [BE]; Bandwagon effect [BE]; Loss aversion [BE]; Anchoring [BE], etc. | Up-front voucher/incentive [BE] |
| **Body** | Traits | Gender;  Age;  Other | Superpowers Game, Personal Traits Analysis | Gender stereotypes [BCD], Age-group stereotypes [BCD], Body change [M]; Cultural similarity [K]; Personalize risk [K] | Tailoring [K], Individualization [K] |
| Physiology | Metabolism |  | +/- Behavioural cost [M] | Improving physical state [K]; Use artifact to help achieve physical goal [BCD] |
| Senses | Smell;  Touch;  Vision |  | Shifting focus [K] | Biofeedback [M]; Use imagery [K] |
| **Behaviour Setting** | Stage |  | Situational Constraints (Scenario Ranking Exercise), Changing Practices |  | Restructure physical environment [M]; Facilitation [K] |
| Infrastructure |  | [see Props] | [see Props] | Technical assistance [K]; Add pavements to neighborhood (walking promotion) [Social ecology] |
| Props |  | In-field design prototyping, Product Life History, ‘Day in the Life’ exercise, Product Universe (attribute ranking), Ideal product design, Product part ranking | +/- Functionality [BCD]; +/- Efficiency of performance [BCD] | Reduce plate size (to limit food consumption) [BE] |
| Roles |  | Role Analysis, Job-related tool | Associate identity with alternative behaviour [M] | Role model [M] |
| Routines |  | Master routine analysis |  | Scenario-based risk information [K] |
| Scripts |  | Daily Scripting |  |  |
| Competencies |  | [Behaviour Trial], Skill ontogeny |  | Guided practice [K], Self-monitoring of performance [K], Provide contingent rewards [K], Set graded tasks [K], Active learning [K], Feedback [K]; Training [M] |
| Norms |  | Norm testing [Bicchieri], ‘Facebook’ Exercise | Induce norm re-perception [Perkins] |  |
| **Environment** | Physical | Macrostructures | Site Observation, Belongings Inventory | Material incentive [M] |  |
| Biological | Pathogens | Environmental microbial sampling |  | Sanitation improvement |
| Social | Dyads;  Networks;  Institutions;  Organisations | *Dyads*: Partnerships analysis  *Networks*: Social Activity Analysis, Social Network Analysis  *Institutions/Organisations*: Community Map | *Dyads*: ‘First move reciprocity’ [BE]; Info about others’ approval [K]  *Networks*: Social support [M]; Social comparison [M; K]; Mobilize social support/networks [K], Resist social pressure [K] | *Dyads*: ‘Buddy’ system; Motivational interviewing [K]  *Networks:* Forming coalitions [K]  *Institutions/Organisations*: Sense-making [K], Team-building [K]; Structural redesign [K], Stakeholder influence [K] |
| **Context** | Programmatic | Other programs | Key informant interview |  | Piggyback on previous program(s) |
| Political | Gvt policies | Key informant interview |  | Regulation [M]; Advocacy [K], Coercion [K], Systems change [K], Media [K], Agenda-setting [K]; Law enforcement [K]; Tax [BE] |
| Economic | Markets | Key informant interview |  | Currency revaluation; Market intervention |
| Social | History, Social trends | Key informant interview |  | Reduce inequality [K]; Community development [K]; Social action [K]; Social planning [K] |
| **Intervention** | Touchpoints | Mass;  Group;  Individual | Touchpoints analysis |  |  |

\* [M] = COM-B ‘behaviour change technique’ (Michie et al. 2015b); [BE] = Behavioural economic technique (various sources); [K] = Intervention Mapping technique (Kok et al. 2015)

Learning processes (not specific to individual behaviour determinant): Habit formation/reversal [M]; Associative learning [M]

# BCD Checklist as Theory of Change Development Tool

This version of the checklist is designed to assist with filling in a BCD-based Theory of Change.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Factor Type** | **Sub Type** | **Sub-sub Type** | **Reinforcement Learning Mechanisms\*** | **Intervention Design Principles\*** | **Example Intervention Ideas** |
| **Behaviour** | Target(s) | Prevalence;  Health impact;  Change task type ^ | N/A | N/A | N/A |
| **Brains** | Executive | Planning/Imagination;  Knowledge/ Beliefs;  Identity | *Planning*: Goal setting [C;K]; Action planning [C]; Vicarious consequences (Imaginary reward/punishment) [C]; Future outcome comparison (pro/con) [C]; Reattribution [C]; Focus on past successes [C]; +/- Framing [C]; Anticipated regret [C;K]; Cognitive dissonance [C]; Self-monitoring [C;K];  *Knowledge*: Incompatible beliefs [C]; Elaboration [K], Chunking [K], Belief selection [K], Elaboration [K], Shifting perspective [K]  *Identity*: Self-affirmation [C;K] | *Planning*: Contract/commitment [C;K]; Peer education [K], Discussion [K], Argumentation [K], Training executive function [K], Planning to remodel physical setting [BCD]  *Knowledge*: Education/Instruction [C]; Information about consequences [C], Risk information [K]  *Identity*: Branding (link product use to identity) [M] | *Knowledge*: Health education messaging  *Identity*: Badge, Uniform, ‘Good mother’ label, Certificate |
| Motivated | [15 motives] | Accentuate primary motive [BCD], Add secondary value (e.g., moralize target behaviour) [BCD]; +/- Reward [C]; Reward goal achievement [C]; Reward alternative behaviour [C]; +/- Reward frequency [C];  Induce arousing situation [K]; Fear arousal [K] | Persuasive communication [K], Empathy training [K], Induce satiation [C]; Public recognition [BCD] | Emo-demos [BCD], Competitions, Prizes |
| Reactive | Reflexes;  Habits | +/- Stimulus (prompts/cues) [C]; Deconditioning [K], Counter-conditioning [K], Cue altering [K], Stimulus control [K], Classical conditioning [K] | Implementation intention [K],  Cues and reminders [BCD] |  |
| Action Selection (second-order considerations about value) | Discount factors; Heuristics/Biases | *Discounts*: +/- Temporal discounting; +/- Financial cost; +/-; Uncertainty (overconfidence effect [BE]); +/- Mental effort [C]  *Heuristics/Biases*: Availability heuristic [BE]; Attribution bias [BE]; Bandwagon effect [BE]; Loss aversion [BE]; Anchoring [BE], etc. | Reduce costs of behaviour [BE] | Up-front voucher/incentive [BE] |
| **Body** | Traits | Gender;  Age;  Other | Gender stereotypes [BCD], Age-group stereotypes [BCD], Body change [C]; Cultural similarity [K]; Personalize risk [K] | Tailoring [K], Individualization [K], Segmentation [M] |  |
| Physiology | Metabolism | +/- Behavioural cost [C] | Improving physical state [K]; Use artifact to help achieve physical goal [BCD] |  |
| Senses | Smell;  Touch;  Vision | Shifting focus [K] | Biofeedback [C]; Use imagery [K] | Lemon smell in hospital wards (hygiene) |
| **Behaviour Setting** | Stage | Place;  Space;  Time |  | Facilitation [K]; Restructure physical environment [C] |  |
| Infrastructure | Functionality;  Aesthetics;  Symbolism | [see Props] | [see Props] | Add pavements to neighborhood (exercise promotion) [Social ecology], Speed bumps (car accidents); Footsteps to soap dispenser (handwashing); Healthy food in front (nutrition) [BE] |
| Props | Functionality;  Aesthetics;  Symbolism | *Improve synomorphy*: +/- Functionality [BCD]; +/- Efficiency of performance [BCD]; Provide technical assistance [K]; | Prototype testing [BCD] | Reduce plate size (nutrition) [BE]; Place product in eye-line [M] |
| Roles | Objective | Associate identity with alternative behaviour [C] | Change default behavioural option [BE]; Demonstration/Modelling [C;K]; Role model [C] |  |
| Routines | External;  Internal | Classical conditioning [BCD] | Scenario-based risk information [K], Substitution [C] |  |
| Scripts |  | Long-term memory formation [BCD] | Aid long-term memory formation [BCD], Reduce multi-tasking/interruptions [BCD] |  |
| Competencies |  | Skill training [BCD] | Guided practice [K], Self-monitoring of performance [K], Provide contingent rewards [K], Set graded tasks [C; K], Active learning [K], Feedback [K]; Training [C]; Practice/Rehearsal [C]; Repeated exposure [K] |  |
| Norms |  |  | Induce norm re-perception [Perkins] |  |
| **Environment** | Physical | Macrostructures; Geography |  | Material incentive [C] |  |
| Biological | Pathogens |  | Sanitation improvement | Latrine subsidy |
| Social | Dyads;  Networks;  Institutions;  Organisations | *Dyads*: ‘First move reciprocity’ [BE]; Info about others’ approval [K]  *Networks*: Social support [C]; Social comparison [C; K]; Mobilize social support/networks [K], Resist social pressure [K] | *Networks:* Forming coalitions [K]  *Institutions/Organisations*: Sense-making [K], Team-building [K]; Structural redesign [K], Stakeholder influence [K] | *Dyads*: ‘Buddy’ system; Motivational interviewing [K] |
| **Context** | Programmatic | Other programs |  | Piggyback on previous program(s) |  |
| Political | Gvt policies |  | Regulation [C]; Advocacy [K], Coercion [K], Systems change [K], Media [K], Agenda-setting [K]; Law enforcement [K]; Tax [BE] |  |
| Economic | Markets |  | Currency revaluation; Market intervention |  |
| Social | History, Social trends |  | Reduce inequality [K]; Community development [K]; Social action [K]; Social planning [K] |  |
| **Intervention** | Touchpoints | Mass;  Group;  Individual |  |  |  |

\* [C] = COM-B ‘behaviour change technique’ (Michie et al. 2015b);

[BE] = Behavioural economic technique (various sources);

[K] = Intervention Mapping technique (Kok et al. 2015);

[M] = marketing technique

^ **Change task types**: Start/stop; Change frequency; Change order (within routine); Ensure adherence; Situation-dependence, Techno-dependence, Expertise dependence, Trait dependence, Financial dependence (see Table 1).

**Adoption**: Do you need to *stop* the target behaviour or *start* it up? If you need to start it up, will there be a problem keeping it going (i.e., adherence/persistence)?

**Frequency**: Is it a *one-off* behaviour or a *repeating* one? If repeated, do repeats happen regularly? Do you need to increase the frequency of repeats?

**Sequencing**: Is it one action or a long *sequence* of actions? Is performance dependent on the performance of other behaviours before or afterwards?

**Individualization**: Can the behaviour be done by *one person* alone, or must several cooperate to achieve it? If more than one, do the cooperators all do the same thing, or do they engage in complementary actions?

**Expertise**: Does it require extensive *skill* or practice to perform or can anyone do it (e.g., brain surgeon)?

**Trait-dependence**: Do you need to be a particular *kind of person* to do it (e.g., lactation)?

**Techno-dependence**: Can a person do it without technological help or is *access to technology* required?

**Situation-**dependence: Does the behaviour have to happen in a particular place, or at particular time of day or week (e.g., in Church)?

Related to COM-B’s Who, What, When, Where, Why, How often? With whom? In what context (of other behaviours), but more theoretical, and includes novel dimensions in comparison (e.g., skills, finance, technology).

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